DOCUMENT RESUME

ED 364 207 IR 016 293

AUTHOR Rumble, Greville
TITLE The Management of Distance Learning Systems. Fundamentals of Educational Planning 43.
INSTITUTION United Nations Educational, Scientific, and Cultural Organization, Paris (France). International Inst. for Educational Planning.
REPORT NO ISBN-92-803-1145-X
PUB DATE 92
NOTE 110p.
AVAILABLE FROM UNESCO: International Institute for Educational Planning, 7-9 rue Eugene-Delacroix, 75116 Paris, France (50 French francs; approximately $8.75).
PUB TYPE Guides - Non-Classroom Use (055) -- Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Access to Education; Developed Nations; Developing Nations; *Distance Education; *Educational Administration; Educational Assessment; Educational Planning; Elementary Secondary Education; Financial Support; Foreign Countries; Higher Education; *Management Systems; Outcomes of Education; Systems Development; Telecommunications; User Needs (Information)

ABSTRACT

This booklet focuses on how to manage a distance learning system so that it maximizes the efficient use of resources while meeting its goals. The management of a distance learning system involves planning, organizing, leading, and controlling. The author focuses on the choice of institutional framework and the funding system; and then describes three major subsystems, the material subsystem involving production of materials, the service subsystem of support for students, and the administrative subsystem for management of tutors. Controlling and assessing outcomes are discussed, drawing on examples from developed countries and developing countries. Distance learning shares a number of management needs with many other enterprises, but this booklet focuses on characteristics that make distance learning needs unique. Most of these traits revolve around the physical separation of components and the tension between the production-oriented nature of the material subsystem and the goals of the student-oriented support subsystem. (Contains 66 references.) (SLD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 364 207

Fundamentals of Educational Planning

43

The management of distance learning systems

Greville Rumble

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL IN **OTHER THAN PAPER COPY** HAS BEEN GRANTED BY

John Hall

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

IA 014 293

UNESCO: International Institute for Educational Planning

BEST COPY AVAILABLE

Included in the series:*

2. The relation of educational plans to economic and social planning, *R. Poignant*
4. Planning and the educational administrator, *C.E. Beeby*
5. The social context of educational planning, *C.A. Anderson*
6. The costing of educational plans, *J. Vaizey, J.D. Chesswas*
7. The problems of rural education, *V.L. Griffiths*
8. Educational planning; the adviser's role, *A. Curle*
9. Demographic aspects of educational planning, *Ta Ngoc C.*
10. The analysis of educational costs and expenditure, *J. Hallak*
11. The professional identity of the educational planner, *A. Curle*
12. The conditions for success in educational planning, *G.C. Ruscoe*
13. Cost-benefit analysis in educational planning, *M. Woodhall*
18. Planning educational assistance for the second development decade, *H.M. Philips*
20. Realistic educational planning, *K.R. McKinnon*
21. Planning education in relation to rural development, *G.M. Coverdale*
22. Alternatives and decisions in educational planning, *J.D. Montgomery*
23. Planning the school curriculum, *A. Lewy*
24. Cost factors in planning educational technological systems, D.T. Jamison
25. The planner and lifelong education, *P. Furter*
26. Education and employment: a critical appraisal, *M. Carnoy*
27. Planning teacher demand and supply, *P. Williams*
28. Planning early childhood care and education in developing countries *A. Heron*
29. Communication media in education for low-income countries *E.G. McAnany, J.K. Mayo*
30. The planning of nonformal education, *D.R. Evans*
31. Education, training and the traditional sector, *J. Hallak, F. Caillods*
32. Higher education and employment: the IIEP experience in five less-developed countries *G. Psacharopoulos, B.C. Sanyal*
33. Educational planning as a social process, *T. Malan*
34. Higher education and social stratification: an international comparative study, *T. Husén*
35. A conceptual framework for the development of lifelong education in the USSR, *A. Vladislavlev*
36. Education in austerity: options for planners, *K. Lewin*
37. Educational planning in Asia, *R. Roy-Singh*
38. Education projects: elaboration, financing and management, *A. Magnen*
39. Increasing teacher effectiveness, *L.W. Anderson*
40. National and school-based curriculum development, *A. Lewy*
41. Planning human resources: methods, experiences and practices *O. Bertrand*
42. Redefining basic education for Latin America: lessons to be learned from the Colombien Escuela Nueva, *E. Schiefelbein*

* Also published in French. Other titles to appear.

The management of distance learning systems

Greville Rumble

Paris 1992
UNESCO: International Institute for Educational Planning

The Swedish International Development Authority (SIDA) has provided financial assistance for the publication of this booklet

Published in 1992 by the United Nations
Educational, Scientific and Cultural Organization
7 Place de Fontenoy, 75700, Paris
Printed in France by Imprimerie Gauthiers-Villas, 75018 Paris

Cover design by Bruno Pläffli
ISBN 92-803-1145-X
© UNESCO 1992

Foreword

The booklets in this series are written primarily for two types of clientele: those engaged in educational planning and administration, in developing as well as developed countries; and others, less specialized, such as senior government officials and policy-makers who seek a more general understanding of educational planning and of how it is related to overall national development. They are intended to be of use either for private study or in formal training programmes.

Since this series was launched in 1967 practices and concepts of educational planning have undergone substantial change. Many of the assumptions which underlay earlier attempts to rationalise the process of educational development have been criticised or abandoned. Even if rigid mandatory centralized planning has now clearly proven to be inappropriate, this does not means that all forms of planning have been dispensed with. On the contrary, the need for collecting data, evaluating the efficiency of existing programmes, undertaking a wide range of studies, exploring the future and fostering broad debate on these bases to guide educational policy and decision-making has become even more acute than before.

The scope of educational planning has been broadened. In addition to the formal system of education, it is now applied to all other important educational efforts in non-formal settings. Attention to the growth and expansion of educational systems is being complemented and sometimes even replaced by a growing concern for the quality of the entire educational process and for

the control of its results. Finally, planners and administrators have become more and more aware of the importance of implementation strategies and of the role of different regulatory mechanisms in this respect: the choice of financing methods, the examination and certification procedures or various other regulation and incentive structures. The concern of planners is twofold: to reach a better understanding of the validity of education in its own empirically-observed specific dimensions and to help in defining appropriate strategies for change.

The purpose of these booklets includes monitoring the evolution and change in educational policies and their effect upon educational planning requirements; highlighting current issues of educational planning and analysing them in the context of their historical and societal setting; and disseminating methodologies of planning which can be applied in the context of both the developed and the developing countries.

In order to help the Institute identify the real up-to-date issues in educational planning and policy-making in different parts of the world, an Editorial Board has been appointed, composed of two general editors and associate editors from different regions, all professionals of high repute in their own field. At the first meeting of this new Editorial Board in January 1990, its members identified key topics to be covered in the coming issues under the following headings:

1. Education and development
2. Equity
3. Quality of education
4. Structure, administration and management of education
5. Curriculum
6. Cost and financing of education
7. Planning techniques and approaches
8. Information systems, monitoring and evaluation

Each heading is covered by one or two associate editors.

The series has been carefully planned but no attempt has been made to avoid differences or even contradictions in the views

expressed by the authors. The Institute itself does not wish to impose any official doctrine. Thus, while the views are the responsibility of the authors and may not always be shared by UNESCO or the IIEP, they warrant attention in the international forum of ideas. Indeed, one of the purposes of this series is to reflect a diversity of experience and opinions by giving different authors from a wide range of backgrounds and disciplines the opportunity of expressing their views on changing theories and practices in educational planning.

The present booklet is concerned with the management of distance learning systems. Indeed, over the years the number of institutions providing distance learning and the number of learners concerned by these programmes have increased significantly. All over the world educational planners and policy-makers are becoming increasingly aware of the possibility of meeting a variety of educational and training needs through distance education. Yet the setting-up of a distance learning system raises a number of questions, one of them being how to run such systems in a way that maximises efficiency and effectiveness in the use of resources.

Given his long experience in the area, Greville Rumble, from the Open University of the United Kingdom, has been asked by the Editorial Board of the IIEP "Fundamentals in Educational Planning" to prepare a booklet on this theme. Starting with the question, "Why distance education?", it then examines the various factors which affect the planning, organizing and controlling of distance learning systems. This booklet should thus be of great interest to all planners and managers concerned with setting-up such a system in a developed or in a developing country.

Jacques Hallak
Director, IIEP

Composition of the Editorial Board

Chairman: Jacques Hallak
Director, IIEP

General Editors: Françoise Caillods
IIEP

T. Neville Postlethwaite
University of Hamburg
Germany

Associate Editors: Arfah A. Aziz
Ministry of Education
Malaysia

Jean-Claude Eicher
University of Bourgogne
France

Aletta Grisay
University of Liège
Belgium

Claudio de Moura Castro
International Bank for Reconstruction
and Development
USA

Kenneth N. Ross
Deakin University
Australia

Richard Sack
International Consultant

Douglas M. Windham
State University of New York at Albany
USA

Preface

Most countries are now faced with the dilemma of having to satisfy an increasing demand for education at post-compulsory level – at tertiary level, in particular – while resources are scarce. Distance learning, which enables a limited number of teachers to reach a very large number of students, seems to open the way to apparently endless economies of scale and cost reduction. It thus attracts a great deal of attention on the part of planners and policy-makers.

Enrolment at open universities has, indeed, expanded greatly in the last twenty years in both developed and developing countries. Distance learning systems, however, are not limited to higher or post-compulsory education. Providing a much more flexible and more individualised educational experience compared to formal schooling, they meet an ever greater variety of needs. They provide learning opportunities to students living in remote areas; to the temporarily or otherwise disabled; to school dropouts and adults who wish to continue learning. Such systems also permit training, re-training or upgrading of working persons.

The needs distance learning satisfies are diversified, but so are their modes of delivery. These now range from the well established to the newest forms of communication technology. In developed countries, in particular, programmes are developed which use not only the printed text but also tapes and cassettes, telephone, audio- and video-conferencing, telematics and computer-conferencing. Questions of direct interest to planners then become: Which media to use to satisfy which needs? Which

media works best where? How effective are these programmes in satisfying the various demands and what is their educational value? How much do they cost? Last but not least: How to run distance learning establishments, which sometimes resemble an industrial enterprise?

The present booklet, prepared by Greville Rumble from the Open University of the United Kingdom, shows that there is no easy or quick answer to the above questions. It focuses on how to manage a distance learning system so that it maximises the efficient use of resources while meeting its goals. Clearly a key component in its successful use, the management of distance education involves planning, organizing, leading and controlling. The author discusses the choice of the institutional framework and the funding system, then describes the three major sub-systems involved, what he calls: "the material sub-system" – the production of materials; "the service sub-system" – the support to students, and "the administrative sub-system" with the management of tutors. He then turns to the questions of controlling and assessing the outcomes.

Drawing examples from both developed and developing countries, this booklet should be of great interest to all educational planners who want to know more about distance learning, the factors to be taken into account when setting up a system delivering such a form of education, and how to run it efficiently.

Françoise Caillods
Co-general editor of the series

Contents

Foreword 5

Preface 9

I. Introduction 13
Defining management 15
Distance learning and its management 16

II. Why and which distance education?
The planner's perspective 19
Purpose: satisfying the needs of different clients 19
Needs and markets 23
Consumer characteristics 25
Media choice 27
Size, technology and cost efficiency 31
Educational philosophy 34
The institutional framework 37
Funding 40
Ensuring successful planning outcome 42

III. Strategic planning 43

IV. Organising and controlling 48
Systems overview 49
Organisational structure
Course development, production and distribution 54
Student services 62
The management of tutors and counsellors 69
Control and the issue of quality 75

V. Budgeting and financial control 80
Preparing the budget 81
Financial control 83
Constraints on management 85

VI. Outcomes 86
Providing opportunities 86
Completion and drop-out rates 87
Quality of output 90
Cost-efficiency and cost-effectiveness 92

VII. Conclusions 95

References and further reading 99

Introduction

This booklet is about the management of distance learning systems. Management is the process of getting activities done efficiently and effectively with and through other people. It is something that takes place in all organisations. The managerial functions of planning, organizing, leading and controlling can be done well or badly. When they are done badly, resources are wasted, opportunities are lost, institutions grow weaker, morale falls, and, in the end, the institution goes under. To ensure that institutions are managed well – that is, both efficiently and effectively; respond to changes in their environment; and prosper and grow, vast sums are now expended on the education and training of managers. This is not the place to justify the investment in management education and training. It is enough to indicate that it is recognised as vitally important from the institutional and, indeed, national, point of view.

Management is not something confined to particular kinds of enterprises. The exercise of management is something that is common to all organisations – profit-making and non-profit making, large and small, private sector and public sector. Education is no exception. The management of education, so that it is efficient (i.e., the relationship between the inputs and outputs of the educational process are managed to minimise resource costs) and effective (i.e., it attains its goals), is of vital importance to those who have a stake in the sector. This includes governments (which fund significant parts of the education service), the owners and shareholders of private educational institutions, those

individuals or institutions other than government who pay for education (parents, adult learners, sponsors), and the learners themselves. The importance of this is attested by the fact that educational management and administration are a recognised discipline within the field of education. If anything, the stress on value for money has added to its importance.

The dominant mode of education remains the school, college or university in which students come together to meet their teachers face-to-face in the classroom. Nearly all the literature on educational management and administration deals with the experience of those who are charged with managing this process (e.g., head teachers; vice-chancellors, rectors or presidents; heads of department; university, college and school administrators; and teachers within the classroom).

The growth of distance learning, from its origins in correspondence education in the 1830s or 1840s through the growth of private correspondence schools and colleges, to the present level of investment in distance education on the part of many publicly-funded institutions and governments, has resulted in the emergence of an alternative educational paradigm in which students are not in constant face-to-face contact with their teachers or their institutions. Indeed, they may have no physical contact with them at all. As a result, those managing distance learning systems face challenges which are not found in traditional classroom-based systems. The generic skills that they must draw on remain those of any manager: the arena within which they must exercise those skills is very different.

To date, relatively little has been written specifically on the management of distance learning systems. Much of the literature deals with the subject only tangentially, if at all. Exceptions include Öster's (1965) pioneering article on the office organisation of a large correspondence school; Rumble (1986) on the planning and management of distance education; Dodds (1983) on the administration of distance teaching; Paul (1990) on «open management» within open learning; Birch and Latcham (1984) on the management of open learning; McAnany et al (1982) on the evaluation of distance education, including its management,

Perraton (1991) on administrative structures for distance education, and various authors writing on aspects of the administration and management of distance education in Kaye and Rumble (1981).

The very significant numbers of learners now studying at a distance, and the large number of institutions in many countries now using distance education methods to teach students, reflect the amount of resources now being put into distance education. If these resources are to be used as efficiently and effectively it is important that those managing them should seek to apply the skills of management to distance education. The purpose of this booklet is to point the way forward. Those interested in pursuing the literature on the management of distance learning systems could do worse than turn to the relevant parts of the course materials now being developed as part of the University of London/ International Extension College Diploma and Masters Degree in Distance Education, and the Deakin University/University of South Australia Master's Degree in Distance Education (Deakin University and the University of South Australia, 1991).

Defining management

Management is the process of getting activities done efficiently and effectively making decisions on what to do and how to do it and then checking that it is done. What distinguishes managers from other people working in an organisation is that they direct the work of others. Managers are usually classified into senior/top management, middle management, and junior/first-line/ supervisory management.

Managers perform a number of management functions. Modern management textbooks generally refer to four functions: planning, organizing, leading and controlling. Planning includes defining goals, establishing strategy, and developing plans to co-ordinate activities. Organizing involves determining the tasks to be done, deciding who does what, how the tasks are to be grouped, who reports to whom, and where decisions are made. Organizing has a great deal to do with determining the structure of an organisation. Leading involves the motivation of subordinates, the

direction of other people, the resolution of conflicts, and the selection of the most effective channels of communications. Finally, controlling involves the monitoring of activities to ensure that they are being done as planned and the correction of any significant deviation from the plan.

These tasks are common to all managers in all organisations. What is actually involved in fulfilling them depends in part on whether the manager occupies a top, middle or first-line position, and on the kind of organisation for which the manager works.

Distance learning and its management

This booklet is concerned with the job of managers working in distance learning systems (DLS). In its pure form, distance learning is a method of education in which the learner is physically separated from the teacher. While teachers may be in direct contact with their students through telephone and audio and video-conferencing, the physical separation of the learner from the teacher means that the latter must teach using some kind of media. While some media allows one to see the students (e.g., video-conferencing) or talk to them (audio-conferencing, telephone teaching) at a distance, there is no face-to-face contact, and the majority of the media used by distance educators (e.g., print, audio-cassettes, video-cassettes, computer assisted instruction, etc) do not allow conversation and dialogue between the teacher and the student. The planning, organizing and controlling of the development, production, distribution and use of the various forms of media is a significant part of the task facing managers in DLSs.

As well as being separated from their teachers, distance learners are also separated physically from the distance learning institution and its administration. In pure distance education, there is no physical location where teachers, administrative staff, and learners can interact. As a direct result, administrative processes which in traditional education can be handled face-to-face, such as enrolment, fee collection, etc, have to be undertaken at a distance. The design and organisation of appropriate administrative systems are other major tasks facing DLS managers.

With students scattered far and wide – often many miles from the central institutional facilities – the conduct of examinations becomes problematic, and DLS managers may have to plan and organise locally held examinations which are accessible to the learners. In addition, many institutions, departing from 'pure' distance education, feel that it is desirable for distance learners to have an opportunity to meet their teachers face-to-face. Residential schools and face-to-face tutorials may be incorporated into the courses, to mitigate the isolation of the long-distance learner. The planning and organisation of these events is another significant task facing managers in distance learning systems.

The isolation of distance learners means that teachers and students have little opportunity to discuss how well the latter are doing. One way of providing such opportunities is through face-to-face tutorials, but for cost reasons, it is not usual to build many of these into a distance course. The other, more normal way, is to build in opportunities for correspondence tuition. Correspondence tuition is based upon the principle that a student is asked to do written assignments which test the knowledge or skills he or she should have acquired from the course materials. This assignment is then sent to a tutor who marks it and comments on the student's work. The corrected assignment is then sent back to the student. The tutor's comments should enable the student to understand where he or she went wrong, and hence to better prepare for any course examinations. This process, which relies on mail systems, needs to be set up, organised and controlled.

One of the drawbacks of traditional forms of education is that there is a limit on the number of students who can be taught effectively by face-to-face means. This is why staff:student ratios are so important in traditional schools, colleges and universities. The substitution of teaching materials for classroom teaching has enabled teachers, through distance learning, to teach far greater numbers of learners than could be done by traditional means (although not all distance learning systems are, in fact, that large). In small systems, it may be possible for individual teachers both to develop new and maintain existing courses, and to provide correspondence tuition to learners. As course numbers increase,

this becomes impossible, and the teaching role has to be divided between teachers who plan the courses and develop the materials, and those who tutor the students. Courses with many students may have very large numbers of tutors, many of whom may themselves be physically remote from the institution where the courses and materials are developed. These conditions create further challenges for the managers of distance learning systems, who have to induct and train correspondence tutors, and plan, organise and control their work.

All of these factors have very significant implications for the manager working in a distance learning system, and pose challenges which those managing traditional education do not have to face.

This is not to say that some of the issues faced by managers in both kinds of institution will not be the same. The management needs of the institution in terms of human resource management (human resource planning, recruitment, selection, induction, training, performance appraisal, career development, discipline, etc), financial management and keeping managerial accounts, purchasing, the management of buildings and grounds, and the provision of institutional services such as cleaning, security, transport and the like, are similar to any enterprise. By and large, this booklet is not concerned with any of these issues. Its purpose is to focus on what makes the management of distance learning systems special.

II. Why and which distance education? The planner's perspective

Distance learning systems are as varied as traditional systems in respect of their purposes, size, technologies, choice, underlying philosophy and efficiency. They also vary significantly in their structure, vis-à-vis traditional forms of education. All of these differences have an effect on why they are set up and how they are managed.

Purpose: satisfying the needs of different clients

Distance learning systems are particularly appropriate for those who, for a variety of reasons, cannot attend a traditional school, college or university. This includes persons of school-age who live in geographically remote areas in which it is difficult or impossible to provide face-to-face teaching (as in the Australian outback, where the Schools of the Air provide distance education to children on remote settlements); those who suffer from physical disability or long-term illness, which prevents them from attending a normal school (e.g. University of Iowa extension services, USA; Calvert School, Baltimore, USA); those who have been displaced (e.g. in Somalia, Sudan); and those who move frequently (e.g. Centre National d'Enseignement par Correspondance, France; Extension Course Institute of the Air University, Montgomery, Alabama, USA). Provision may include formal education courses at primary level (e.g. Télé-Niger), secondary level (e.g. Malawi Correspondence College, Mexican Telesecundaria, Air

Correspondence High School, South Korea), and tertiary level (e.g. Sukhothai Thammathirat Open University, Thailand). In general, distance teaching methods can be used to meet the needs of students at secondary and tertiary education levels, but they are not appropriate for primary school students unless those students are being tutored by a parent or another adult or are in classes supervised by a monitor who keeps order.

As well as meeting the needs of those who are of school, college or university age, but unable to attend these institutions for initial education, distance education is well suited to the needs of adults who for social, economic or educational reasons missed out on the opportunities available through initial education, or who wish to retrain or update themselves, or study for personal interest and enjoyment. For a whole variety of reasons – perhaps because there are no opportunities for taking courses locally, or because they work or are tied to the home – adults may find it more convenient to study by distance means, rather than attend day-time or evening classes on a part-time basis. For some, indeed, there may be no viable alternative. Others may prefer to study by distance means. Whatever the reason, a large number of adults engage in distance learning and take a whole mixture of subjects for a variety of reasons.

Adults may therefore follow primary equivalent courses (through, for example, the programme of Radio Santa María in the Dominican Republic, or Acción Cultural Popular in Colombia), secondary courses (e.g. CENAPEC, Dominican Republic; National Extension College, United Kingdom), and tertiary courses (e.g. Open College, United Kingdom, Universidad Nacional de Educación a Distancia, Spain). In some cases, provision of these 'second chance' courses is linked to the waiving of normal entrance standards, to credit transfer and advanced standing regulations, and to the acceptance of experiential learning as a means of providing equivalent entrance qualification.

In addition to programmes providing adults with a distance-equivalent of the primary, secondary and tertiary courses available through initial education, a whole range of liberal arts, community development and vocational education distance courses are also

available to adults. For example, the Open College of the Arts, United Kingdom, provides its students with courses in painting, photography, etc. Community development programmes aimed at the provision of basic information (e.g. health and nutrition), agricultural extension and social behaviour (e.g. family planning) have also been provided through distance teaching programmes of various kinds (e.g. nutrition campaigns, South Korea; L'heure Rurale Radio clubs, Togo; La Voz de Atilán, Guatemala).

Distance education can also be used to support vocational education and training. For many years, it has been used as a means of training unqualified or underqualified teachers. By the mid-1980s, distance-taught teacher education programmes had been established in more than forty developing countries (Nielsen, 1990). Examples include programmes offered by distance teaching universities (e.g. Allama Iqbal Open University, Pakistan; Universidad Estatal a Distancia, Costa Rica), teacher training colleges (e.g. National Teachers' Institute, Nigeria), and government agencies or centres (e.g. Centro de Educaç@o Técnica, Brazil; Emlalatini Development Centre, Swaziland). It has also been used for many years to provide professional and management education. Foulkes Lynch Correspondence Tuition Services, based in the United Kingdom, and specialising in accountancy, began operating in 1884. Other examples include the certificate programme in computer-based information systems offered by the University of Victoria, British Columbia; the diploma and master's degree courses in agricultural development, offered world-wide by Wye College, University of London; and the Technician Training Programme offered by the National Extension College, United Kingdom.

While many distance-taught vocational education programmes are aimed at individuals, others are specifically aimed at companies. For example, the National Technological University, USA provides a vehicle through which the graduate engineering courses of 29 universities are made available to the employees of large corporations and government agencies, which purchase access to the university's satellite-delivered broadcasts. Nearly 100 firms had participated in the scheme in 1989/90.

Distance Learning methods may also be used by firms for the delivery of their training. For example, the Banco Popular in Colombia uses distance learning to provide in-service training to its employees; in Brazil, PETROBRAS, the state oil company, uses distance education to train production workers on its oil rigs; and in Italy and France, the Banco SANPAOLO Group utilises distance education methods to train employees.

The advantages of distance learning, from an employer's point of view, are that:

- participation does not require the employee to be absent from work. While employees may be given time off to study, some of the training may take place in the employee's own time. A major advantage of this is that some of the costs of training are transferred from the firm to the employee;
- the employer no longer incurs the cost of sending employees away on training courses. The costs of travel and of residential training can be high. Significant savings can thus be achieved;
- individual employees may be reluctant to take up training which necessitates absence from home. Distance learning gets round this problem.
- relatively few trainers can reach large numbers of trainees;
- employers can train more people more quickly than they would by traditional means;
- employers can train dispersed workforces (e.g. PETROBRAS' programme for production workers based on oil rigs).

Thus distance education methods can enable educators and trainers to meet a wide variety of needs, many of which could not be met, or not easily met, through traditional methods of education and training. There is, however, another stakeholder in the process, and that is government. Governments often put up much of the money required to establish a distance learning system. In so doing, they count on distance educators to provide a system which will:

- meet the needs of a large pool of frustrated demand from primary or secondary level graduates for secondary or tertiary education (c.f. the role of the Universidad Nacional Abierta in Venezuela, as a mechanism for providing opportunities for young adults who cannot get into a traditional university);
- meet the needs of adults for educational opportunities (cf. the impetus behind the founding of the 'second chance' Open University in the United Kingdom);
- meet the needs of disadvantaged people unable to enter traditional education for a variety of reasons.
- meet large-scale needs for training or retraining in professional, technical and vocational fields (cf. the role of the Technical Open Polytechnic in New Zealand, and the original role envisaged for the Open College in the United Kingdom);
- provide a vehicle for delivery of training to firms (cf. the revised mission of the Open College in the United Kingdom);
- achieve economies of scale (a specific objective in such foundations as the Andhra Pradesh Open University, India and the Universidad Nacional Abierta, Venezuela).

Needs and markets

The previous section outlined the range of needs which can be met by distance learning systems. Needs do not, however, necessarily constitute a market. A market only exists if there are acutal or potential buyers of a product or service, who see the purchase as satisfying their needs.

Markets can be segmented. In principle, each buyer has unique need, so that ideally an educational provider might design a separate product and marketing programme for each buyer. However, very few providers can customize their products to satisfy each buyer. Instead, they look for broad classes of buyers. Educational providers may therefore segment their buyers by level of qualification (degree, postgraduate diploma, secondary school

certificate, non-formal community education project), subject matter (science, arts, psychology, micrc-biology, nutrition, crop pests, etc.), age (school-aged person, adult), occupation (engineer, telecommunications technician), income, and cultural background.

Educational providers never have the option of designing packs, courses or programmes that will appeal to or at least satisfy most buyers, and which can be marketed through mass distribution and mass advertising. They must either go for differentiated or concentrated markets.

Providers who go for differentiated markets essentially hope, through a range of sufficiently different packs, courses and programmes, to provide «something for everyone». A good example of this approach is that of the Open University in the United Kingdom, which offers research degrees, taught masters degrees, an undergraduate degree, diplomas, community education packs, and programmes aimed at industry. Providers who do this hope that a strong position in several segments will increase public awareness of the institution, and lead consumers to repeat purchasing. For example, an individual who successfully takes a community education course may subsequently enrol on a diploma or degree course. They therefore offer a wide spectrum of courses, some of which will attract large numbers of students while others have relatively low numbers of students. Many of the latter will need to be justified on the grounds that they are part of a credible programme in a given subject area, and not because they themselves attract significant numbers of students.

Providers whose resources are limited may concentrate their marketing. Thus Wye College offers ten courses in agricultural development (four courses lead to a diploma; a further three out of six options lead to a taught masters degree). Such a strategy can lead to a strong market position in a particular segment. It nevertheless runs the risk that the market will collapse, or that stronger and better known competitors will enter the field and attract people away from the original provider. Niche markets of this kind may also become saturated. Thus the Indonesia Banking Development Institute developed distance learning to train an estimated 15,000 credit officers conversant with the needs of small

enterprises. By 1990, when only 4000 individuals had taken the programme, it was clear that demand for the programme was dropping. Some niche markets are very small. For example, Wye College has just over 300 students on its agricultural development programme. Others can be quite large. The Universidad Pedagógica Nacional in Mexico, which provides in-service training to unqualified and under-qualified teachers, had 60,000 students in 1980.

Occasionally, providers find that they have virtually captive markets. This is particularly true of those providers who meet the needs of particular firms for specific training. For example, the Banco Popular in Columbia instituted a distance learning system to train its employees. The programme is compulsory for new employees, but voluntary for existing ones. Takeup is, however, very high, because bank employees gain promotion points for successfully taking the programme or elements of it.

Consumer characteristics

Those setting up and managing distance learning systems need to have a clear idea of the characteristics of their consumers, whether these are individuals or firms. This is vitally important, since it will determine not only what courses they are likely to want (see above), but also what kind of delivery and support systems will be needed, and what level of fees or charges is acceptable.

Distance learning systems depend on a wide variety of media for their delivery. It is clearly no good deciding to use a particular delivery system if the majority of those the programme or course is aimed at are not going to be able to access the medium. For example, the National Technological University (NTU) makes use of satellites to distribute the televised lectures to reception sites which are based within firms. Such reception sites need to be equipped and co-ordinators need to be appointed to maintain daily contact with the students and the NTU. The minimum cost for setting up a reception site (in 1989/90 financial year prices) is US $40,800. The recurrent fixed cost, including the annualized cost of buildings and equipment, is $17,500. In addition there is a

variable cost per student of US $50 for books and photocopying. Firms also have to pay a fee to join the NTU, based on the number of employees they have. The costs of the technology, and the cost of the access fee, are such that only large firms (those with more than 500 employees) can afford to use the NTU's services. Before the NTU could target small and medium sized enterprises, it would need to review its delivery systems and the cost of these to its clients.

In the United Kingdom, the Open College set out to provide distance taught courses to individual learners. Early experience indicated that the fees the college needed to charge in order to become self-financing were more than individual learners were prepared to pay. As a direct result the College restructured itself and focused on the corporate market.

These two very different examples illustrate why those planning and managing distance learning systems must take account of the characteristics of their consumers before they commit resources. However, institutions may need to adopt their systems to deal with variations in customer characteristics. Many distance learning systems make use of local centres where learners can meet each other and the tutor on their course. The establishment of local centres needs to take account of when students work, and how easy it will be, and how long it will take them to travel to the centre. Locating the centres is only the first issue. The precise tutorial strategy adopted at a centre may well depend upon the number of students following a particular course at a particular centre. For example, it may be viable to appoint a local course tutor to run tutorials where there are viable groups of students (perhaps 15 or more following a common course), but not where there are less than this number. Tutorial and support service planning will depend greatly on where students live relative to local centres, and how many there are. What works in one area of a country may not work in another. For example, in urban areas with relatively high concentrations of students on particular courses, it may well be possible to arrange tutorials or self-help groups. In rural areas, with dispersed populations, this may prove impossible — unless the programme is designed quite specifically

to deliver community-based education to rural areas. Isolated students can nevertheless be contacted using the telephone, two-way radio, and electronic mail.

Delivery systems also have to be suitable for use by potential students. In some countries, postal services work well in some areas but not in others. Sometimes, as in the Dutch Open Universiteit, one can assume that students will be able to travel to a local study centre. Holland is, after all, a relatively small, compact country with an excellent public transport system. In other cases (e.g. Athabasca University in Canada) this is not possible, given the distances involved. Broadcast transmissions may not be receivable in some areas. These local variations need to be considered before one becomes locked into a particular delivery and support system, to the exclusion of all others.

Media choice

Distance educators have an increasingly wide range of media to draw upon, including print, correspondence tuition, radio, television, teletext, viewdata, audio and video-cassettes, video-discs, telephone (one-to-one or teleconferencing), video-conferencing, teaching aids (such as photographic slides and experimental kits for use in the home), and computers (used to undertake computing, as a general tool for word processing and the use of spreadsheets, for electronic mail and computer conferencing, and in computer-assisted learning/computer-aided instruction). Technological development is increasing the range of such media, and increasing the way in which media can be combined (as in the case of hypermedia). For example, tutored video instruction systems use television to allow students to see and listen to their instructors, but combine this with a telephone link back to the instructor, so that the student can raise questions.

There is also a distinction between those media which students and instructors use directly, and the delivery technologies which carry them. Print, for example, may be delivered on paper, on computer disc, by viewdata systems, or by accessing and down-loading from a mainframe computer. Video can be delivered by

film, video-cassette, and television – transmitted terrestrially, by cable, or by satellite. Each medium has its advantages and disadvantages. Sometimes the means of delivery will affect the way in which a student uses the material; and others it will not. For example, pedagogically it does not matter to a student whether video is delivered by cable, terrestrial or satellite broadcast – though these issues will affect the equipment students need. On the other hand, once video material has been recorded for home use, the student can use it much more flexibly, stopping it, starting it, and replaying it at will. This is something that is impossible if the material is only available through normal programming.

There are various factors which planners and managers of distance learning systems need to take into account when deciding which medium to use. Firstly, they should only use media which their potential market can access. This involves checking not just on what is technically available within a given society, but what media the target population currently makes use of. Even if access is technically feasible, one needs to ask oneself whether the target group will be able to afford the medium. Generally speaking, print, correspondence tuition, radio, audio-cassettes and teaching aids such as photographs are readily available and relatively inexpensive. Video and computer-based systems are more expensive and hence less commonly available.

Secondly, one needs to find out whether the distance teaching institutions have or can afford to pay to have access to the necessary production and distribution systems. For example, in some countries there is a severe shortage of television and video production facilities, and television channel time.

Thirdly, one needs to decide what works best pedagogically, and why? Much depends on the specific objectives one is trying to reach.

According to Sparkes (1984), knowledge is easy to present but will only be learnt by those who are motivated to learn, (usually not a problem with adult students), provided they have survived the first few weeks of studying at a distance), have good memories (a problem more likely with older students), and who have sufficient background information to make sense of the

information being offered (e.g. one cannot learn or make sense of mathematics unless one has a grounding in the subject). The method of presentation needs to match the kind of knowledge. Thus video, colour slides, etc. can be used for natural history; print for numerical data; audio for music, etc.

While this may raise awareness, the teaching of understanding requires the use of redundancy or discussion and preferably both. Redundancy simply means teaching the same idea in several different ways — using pictures as well as words, analogy as well as models, etc. The purpose is 'to drive new concepts and thought processes through the learner's mind several times and in different contexts' (Sparkes, 1984). Redundancy requires the use of various media. Discussion involves clarifying ideas and concepts, once they have been presented through discussion with teachers and other students, dialogue with a computer programme, and even with oneself (through self-assessment questions). Distance teaching texts can be structured so that they encourage learners to embark on what Holmberg (1989) calls a 'guided didactic conversation' which encourages the student to think aloud. Computer-aided instruction does something similar, providing opportunities for interaction and instant feedback to the learner. Discussion can also take place in video and audio, computer and tele-conferences, and face-to-face in small groups. Sparkes draws a distinction between teaching through discussion and remedial teaching where the aim is to reveal and correct the individual student's misunderstandings. The latter is best done privately, through correspondence, face-to-face, or by telephone.

The teaching of skills consists of instruction and demonstration, and of providing students with opportunities to practice their skills and have their work monitored (Sparkes, 1984). The first can be done relatively easily through video or face-to-face demonstrations. Video, which can be replayed, is a better medium than face-to-face demonstration. Some skills can, however, be taught through audio-vision (combining graphics and still pictures with audio), illustrated instruction books, and computer-aided instruction. Language and some interpersonal skills can be taught by audio tapes alone. Practice can be handled in one of several

different ways, including written work (for intellectual skills), computer-assisted learning (for skills where responses can be coded), audio (for language and music skills), and self-checking using standardised test procedures (e.g. in the design of electronic circuits). However, many skills need face-to-face supervision.

Learners can also be taught in the affective domain through writing, and audio. The 'essence of the process [is] to appeal to the emotions as well as the intellect' (Sparkes, 1984). Video, fiction, poetry, powerful writing, speeches and plays can all do this.

Finally, and most importantly, one needs to ask oneself what medium will suit the learners. Some students have very limited backgrounds in formal education. Some may not be literate. Some cultures favour oral presentations (e.g. African – c.f. Sine, 1975). Others favour pictorial representation and cartoons, rather than text (e.g. Venezuelan – cf. Escotet, 1978). Such differences need to be taken into account.

Many planners feel that one should be able to settle the question of media choice by finding out from which medium students learn best. Writing in 1972, Schramm said:

> "... given a reasonably favourable situation, a pupil will learn from any medium — television, radio, programmed instruction, films, filmstrips or others. This has been demonstrated by hundreds of experiments. In general, the same things that control the amount of learning from a teacher face-to-face also control the amount of learning from educational media; among others, the relevance and clarity of the content, individual abilities, motivation to learn, attention, interest in the subject, respect and affection for the teacher, emphasis and replication of the central points to be learnt, and rehearsal by the learner."

All the evidence suggests that motivated students will learn from any medium ifit is competently used (Eicher et al, 1982).

There are, however, certain guidelines which determine whether or not a particular medium is appropriate in given circumstances, given the nature of the content and the aim of the teacher. Finally, questions of access, availability and cost (discussed below) will determine whether a particular medium can be used in given circumstances. However, the evidence suggests that in general one needs a mix of media (allowing redundancy) and also some media which will enable discussion and dialogue to take place.

Although much that is written in distance education focuses on the latest developments in media (in rough order of developments since the 1950s, educational television, video, computer-assisted learning, electronic mail and computer conferencing), print, correspondence tuition, and audio remain dominant, not least because they are relatively cheap, easy to produce and distribute, easy to use, and accessible to students. Leading-edge technologies, for example, computer-mediated communications, tend to have high costs, and institutions introducing them may face technical and organisational difficulties which make them unattractive for general use. Technologies such as television 'have been significantly de-emphasized in a number of projects (e.g. Samoa, Niger, Colombia, Ivory Coast)' as, 'one by one', the educational television systems set up in the 1960s have 'discarded or drastically reduced [their] commitment to television' (McAnany et al, 1982). Newer systems, with one or two notable exceptions, such as the Radio and Television Universities in China, have used relatively little television or, like the United Kingdom Open University, reduced both production and transmission levels. Other technologies, such as teletext, have never really taken off.

Size, technology and cost efficiency

Distance learning systems vary in size from the very large with over 100,000 students (e.g. Allama Iqbal Open University, Pakistan; Open University, United Kingdom) to those catering for a handful of students (e.g. Wye College, PETROBRAS Project Acesso). Similarly, the numbers of students taking any particular course may vary widely. Within the Open University, for example,

some courses have under 100 students enrolled each year, while others have in excess of 5,000.

Clearly, then, distance education can enable a limited number of teachers to reach very large numbers of students. It does this by substituting media and materials for labour in the classroom. As a direct result there is a change in the cost function, involving the substitution of capital in the form of investment in materials and infrastructure for the labour intensive process of conventional teaching.

Input substitution has to do with economies of scale in the delivery process and the ability of the institution to spread fixed costs over large numbers of students, either in a single presentation of the materials (as in health and nutrition campaigns), or through the use of the same course materials over several years.

There is a balance to be drawn between size, input substitution, and choice of media. In general, costs of a conventional educational system are made up of fixed costs, which do not vary with student numbers, and variable costs which increase or decrease in line with increases or decreases in student numbers. The cost function can be generalised as follows:

$$TC = F + VS$$

where TC is the total cost, F is the fixed cost, V is the variable cost per student, and S is the number of students. A significant part of the variable cost is in teacher salaries. Because the number of teachers is directly related to student numbers, and because there is relatively little spent on developing courses – once syllabuses have been defined – apart from teacher time, the cost of expanding the curriculum can be treated as a variable cost.

In distance education systems, the cost of the time invested by teachers in the development of the curriculum and the materials is a significant cost. In respect of any particular course, this is a fixed cost, but if the number of courses is increased, then the fixed costs of developing and maintaining them also increases. Hence the cost function is:

$$TC = F + (DC \div L) + MC + VS$$

where TC is the total costs, F is the fixed cost (of the infrastructure), C is the number of courses, D is the average cost per course of developing a course, M is the annual cost per course of maintaining a course in the profile, L is the number of years of life of a course, V is the variable cost per student, and S is the number of students. In effect, the development costs of a course are being annualized over the life of the course. It follows from this that the annualized fixed cost of development can be lowered by increasing the life of the course.

The choices which distance educators make in respect of media can have a significant effect on the behaviour of the cost function. Increasing the amount of face-to-face and correspondence tuition increases the variable cost per student, without affecting fixed costs. Choosing broadcasts – either radio or television – increases the fixed costs, since the costs of production and transmission are unaffected by student numbers, but the extent to which the total cost of the system changes varies between radio and television since the cost of the latter is much higher than that of the former (of the order of 10:1, although there are significant variations around this ratio). The production costs of video may be lowered, relative to the costs of television, if the video is put onto cassettes for distribution to students. However, the variable cost per student of delivery by cassette is considerable, so that most systems do not contemplate this as an option where student numbers are high. It may nevertheless be feasible to consider using video-cassettes on courses with low numbers of students (since total costs will then be low) or if the students can pay for the videos.

Computer-mediated communication costs are relatively high. Depending on the system used, they may fall on the student or the institution. The University of Victoria's Certificate Programme in computer based information systems initially allowed students to connect to the University's mainframe through British Columbia Telephone's DATAPAC packet switched network. The average costs were Canadian $128 per student (1989 price levels). The University charged them $50 for this service. To avoid this cost, the University would have to change the system so that students link directly to a computer at the University without using

DATAPAC. However, students would then have to pick up the cost of the connection through the telephone system. For students incurring long-distance call rates, this would not be inconsiderable.

The cheapest media tend to be print, audio-cassettes, and radio. Film, television, video and computer-based systems are more expensive. Tuition, which is labour intensive, is used but the level of usage is generally restricted to keep total and direct student costs down. Media choice can have a significant impact on system costs. Each media has its own cost structure, and its own level of fixed and per student variable cost. This cost structure makes it more or less appropriate depending on the number of students in the system.

Unit fixed costs fall rapidly as student numbers increase. Overall, however, 'television remains an expensive medium for poorer countries...educational television cannot be cheap and should not be recommended as long as a significant proportion of households are not equipped to bear a significant part of the infrastructure costs (i.e. reception receivers)' (Eicher et al, 1982). In contrast, radio is much cheaper, but even here Eicher et al (1982) indicate that they are sceptical of its use in projects where there are less than 2,000 enrolees. Not surprisingly, the media most commonly used tend to be print, audio-cassettes, and radio, in conjunction with some face-to-face contact.

Educational philosophy

The substitution of inputs, from classroom labour to materials, means that most distance learning systems offer their students relatively inflexible courses which can be taken by many thousands of students. Such systems are characterised by fixed curricula, course content, teaching strategies, assessment policy, and support services. The main purpose of such institution-centred models is to maximise the effectiveness and efficiency of the educational process (Bertrand, 1979). Most large-scale distance learning systems conform to this type. Models adhering to this approach tend to treat learning as the processing, storage and retrieval of information (i.e. an information-processing or banking

model of education). Such models give credence to Escotet's charge (1980) that distance education systems tend to be instructional systems relying on Skinner's (1968) behavioural approach, rather than educating systems.

Recent developments in educational thinking, including emphasis on independent study; calls for the recognition of prior learning and existing competences; pressure for more flexible routes through education via student exchanges and credit transfer arrangements; and moves to standardise the level and quality of qualifications, have all tended to emphasize the learner as a consumer of education. These developments are consistent with a person-centred view of education, in which the institution recognises and accommodates individual student wishes, and in which the curriculum is negotiated and individualized programmes of study and forms of assessment are agreed between the institution and the individual student. A good example of such an approach is the contract learning system developed by Empire State College, of the State University of New York, USA. Person-centred models analyse education from a humanistic perspective, put the learner first, and emphasize the meaningfulness and personal significance of the learning experience. Carl Roger's (1969) model for non-directive teaching, and some of the thinking behind certain approaches to experiential learning, is typical of this approach. A third approach is to concentrate on groups of learners or even whole communities (e.g. villages), designing educational programmes to meet the needs of the group or community. The role of the institution is to generate materials as a resource for group and community discussion, and to provide trained facilitators who can get the group or community to initiate action. The Canadian Farm Forums of the 1940s, the Tanzanian rural health campaigns, and Acción Cultural Popular in Colombia are good examples of the approach. The model is based on social action and social interaction approaches, in which the main purpose of educational activity is to bring about changes in society, social structures, and institutions. Community action learning programmes exemplify this approach.

Distance educators can support all three philosophies. Each, however, has significant implications for the way in which the system is structured, the purpose and approach to materials development, the purpose and need for learner support, and the approach to planning.

In general it is much easier to think about more flexible, open curriculum, and hence in terms of person or society-centred models, in systems which are small. Small scale systems cannot afford to invest large amounts of time and money in the development of learning materials. As a result, they will also tend to emphasize the use of existing materials (e.g. textbooks) coupled with increased tutorial support for students. Although the per capita cost of providing such support may be high, the total cost will be kept within bounds as long as student numbers do not rise significantly. In some systems, students can negotiate their own curriculum (e.g. Empire State College, State University of New York).

From the time that the objective is to provide mass education to many thousands of people, the total cost of providing significant amounts of student support services becomes considerable. As a direct result, effort is put into the development of materials which take the place of the teacher, thus replacing the labour of teachers by the capital investment in materials. Economies of scale are then possible. The price of this is a loss in flexibility and - usually - considerable restrictions on curriculum breadth and choice of course because one cannot afford to invest large sums in the development of courses which will attract very few students (as in distance teaching universities such as the Universidad Nacional Abierta, Venezuela and the Open University, United Kingdom).

It is possible to combine both approaches, having institution-centred 'packaged' courses in those subjects with many hundreds of students and more flexible person-centred tutored courses built around standard textbooks in subjects where student numbers are restricted. Institution and person centred systems, while not philosophically compatible and while needing different managerial approaches, can co-exist together.

The person-centred approach is to some extent consistent with a society-centred system which recognises the right of the individual to opt into different groups of learners, depending on personal interests, yet also to study alone. It is much harder to combine institution and society-centred systems because of the fundamentally different philosophies and cost structures underlying the pedagogy. Indeed, the whole approach to planning needs to start from opposite ends of the spectrum. In society and person-centred systems, planning needs to start with group and individual needs, develop appropriate learner support systems, and then identify suitable materials which groups and individuals can use. In an institution-centred system, the aim is to identify educational or training needs which are common to a large number of potential clients, develop materials to satisfy those needs, and then design student support services which will support learners in their attempts to master the materials.

Systems in the formal education sector aimed at large numbers of potential students are generally institution-centred; those in the non-formal sector tend to be person- or society-centred. In distance education, it is absolutely vital to think through what one wants to achieve before setting a system or designing materials and student support systems.

The institutional framework

One of the major issues facing those planning a new distance learning system is to decide on the kind of institution framework which should be established. There are three basic options: a purpose-built distance education system; a distance learning system embedded within a traditional institution, and drawing on it for many of its needs; and a small co-ordinating body which brings together and co-ordinates the expertise of other institutions in a network. These models are usually referred to in the literature as the autonomous or single-mode, the mixed or dual-mode, and the network model, respectively.

Each model has its advantages and drawbacks. Perry (1976) reports on the intense scepticism from traditional university

academics which he faced when he was setting up the Open University in the United Kingdom. The only way of making progress was to establish a new institution, dedicated to distance education. This approach enabled the institution to determine its own rules and regulations, given the autonomous framework within which British universities operate. Staff interested in the challenge of teaching at a distance quickly built up an expertise, and a strong corporate culture emerged. This experience led Perry to conclude that the single-mode approach is the best. Over the years some notable colleges and universities have been set up, based on this approach (e.g. Universidad Nacional Abierta, Venezuela; FernUniversität, Germany; Indira Gandhi National Open University, India).

The mixed or dual-mode institution is nevertheless much more common. It arises when a department within a conventional institution decides that it wishes to enlarge its market by teaching students at a distance, or that a particular course or programme of study would have a market beyond the college walls, which can only be met by distance means. The actual model varies. Sometimes a department retains control of both the distance and conventional teaching operations – as at Wye College, University of London, where the Department of Agricultural Economics developed a distance taught diploma and master's programme in agricultural development. This integrated approach may be adopted throughout the institution, as at Deakin University in Australia, where most departments deal with on (traditionally-taught) and off-campus (distance-taught) students. In other dual-mode institutions, the distance education 'wing' is separated off from the on-campus activities. This may result in the operation and its students acquiring second-class status within the institution, as happens in many Indian universities, where the Correspondence Directorates are seen as distinctly inferior in quality and status (Singh, 1979). This can be a serious drawback. Shott (1983) saw serious conflicts of loyalties on the part of staff working in institutions teaching both on-campus and distance students. He argued that in such institutions staff could not help but regard the

on-campus students as their first priority, to the detriment of the distance students.

On the other hand, dual-mode institutions have distinct advantages. The distance education wing can draw on the academic human resources of the whole institution to create courses. Lectures delivered on-campus can be videotaped and repackaged with other materials to create distance-taught courses. While this approach does not generally result in courses suitable for weak and inexperienced learners, it can provide updating courses for professionals cheaply and effectively (as the experience of the National Technological University, which uses this approach, testifies). Such approaches provide access to a much wider curriculum than most single-mode institutions can afford, given the costs of course development, to support. NTU, for example, can draw on 7,000 courses, and while it generally only presents 125 of these at any one time, it can cost-effectively put on any course provided there are at best six students wishing to take it.

Finally, there are networks. The National Technological University, USA, provides one example of a network. The small central co-ordinating body acts as a vehicle for the delivery and accreditation of the video-taped versions of graduate engineering courses developed in the engineering schools of some thirty conventional universities. The NTU's clients are the large firms which buy its services and enable their employees to take NTU's courses. NTU is, effectively, a network organisation, joining the university departments which develop the courses to the client firms, which use its training services. Its success is based on the fact that each of the partners gains financially from the arrangement: the universities and their professors in per capitation payments for students on their courses, and because the NTU provides them with a larger potential market than they could achieve on their own; NTU, in income from fees; and the firms, which reap the benefits of opportunity cost savings by not having to release staff to attend full-time courses, often at non-local universities where the costs of relocating staff would be substantial. Other kinds of networks bring together broadcasting

organizations, materials production agencies such as publishers and film units, adult educators, etc. in a network. An example of such an institution is the Norsk Fjernundervisning (Norwegian Distance Education). Problems can arise, however, where common interests are not strong enough to keep the partners together, and where disagreements about academic and pedagogic policies, or technical and financial pressures, make collaboration difficult.

Funding

The educational philosophy, institutional framework, and choice of media have a profound effect on the overall costs of a distance education system. Autonomous, institution-centred systems utilising high-cost technologies such as broadcasting and computer-based instructional and communications systems are likely to have high fixed costs, relative to traditional institutions. These costs arise from the need to invest in the development of course materials and to establish an infrastructure to manage materials production and distribution, and student services. High fixed costs are also a feature of the courses themselves. Laidlaw and Layard (1974), for example, found that the ratio of fixed costs to variable costs in social science courses in the British Open University was 2,000 to 1, against 8 to 1 in traditional British universities. Although the low variable cost per student, relative to traditional education, means that economies of scale are achievable provided student numbers are high enough, the very high initial investment required to establish an autonomous institution-centred system can be off-putting to governments and private investors alike. Not surprisingly, most commercial correspondence colleges opt for low-cost technologies (print, audio-cassettes), while many state-funded systems are off-shoots of existing traditional institutions (as in the Australian dual-mode system).

The high costs of investing in the infrastructure and in the development of course materials means that the majority of large scale distance learning systems are funded by government, in whole or in part. To the extent that they are not, the debate

usually concentrates on the proportion of their total costs that will be met from income from student fees, and the affect of increases in fees on the student body.

There is, of course, a strong commercial sector, but in general private institutions restrict themselves to areas where there is a known market, able to pay prices which will meet the costs of teaching, administration, and future course development. Some private correspondence institutions focus on the individual market (e.g. individuals who wish to take courses in languages or business studies). This market is notoriously difficult to penetrate, and many commercial correspondence colleges spend a very high proportion of the fees they receive on advertising and publicity. The high cost of penetrating this market has led a number of institutions to concentrate on the corporate sector - selling training services to firms (e.g. National Technological University, USA). The Open College (United Kingdom) switched from a focus on individual learners to one on corporate training partly because of the high costs of penetrating the individual market.

Experience suggests that large areas of education and training are unattractive to commercial providers because the number of students interested in the course on, for example, high energy physics, is insufficient to provide a viable economic base for operations. Equally, there are many potential students who cannot pay the fees which commercial schools and colleges must charge if they are to cover their costs and generate sufficient funds to develop new courses.

Ensuring successful planning outcome

This chapter has explored some of the main strategic issues which those planning distance learning systems need to face. What, then, makes for a successful outcome to the planning process?

Dodd and Rumble (1984) pointed to the crucial importance of political backing for government-sponsored projects, coupled with a tendency to isolate the planning process for innovative projects such as distance education institutions from the normal bureaucratic processes of government, where the countervailing

arguments of traditional educationalists might water down or even stop the proposal. They noted that very often the planning bodies charged with setting up new distance learning systems had highly specific terms of reference which charged them with establishing the system, and not with questioning the need for it. Where the issue was left open, it was by no means a foregone conclusion that a new distance teaching institution would be established. Finally, planning committees tend to have prestigious members, including persons drawn from the traditional areas of education, but with a known interest in innovation. Continuity between the planning and implementation phase can be assured by offering members of the planning commission key positions in the new institution.

III. Strategic planning

The conventional view of strategic planning involves the elaboration of a blueprint or grand design for the future. Such documents usually start with a mission statement which expresses the expectations and fundamental beliefs and values that drive the institution. The mission is translated into a vision by the leader, who expresses, through a vision statement, the issues and values which he or she sees as important in the real world. Mission statements can be internalised into images which determine the culture and behaviour of the institution, and which can lead to an almost obsessive commitment to certain values. Missions generally relate to concepts such as quality, customer service, integrity, openness, equal opportunities, and attitudes towards people, employees, the environment, profit, etc. – all of which inform policy. A good example of this applied to distance education is to be found in Paul (1990), with his call for a link between open education and open management.

Mission and vision set up a picture of what the institution and its leader want to be at some point in the future. To achieve this end, institutions develop long-term plans or strategies which lay down the broad courses of action which they will follow over the next three to ten years. Typically, these will be framed as goals which are drawn up in the light of environmental scans, SWOT (strengths, weaknesses, opportunities, threats) analysis, and business portfolio techniques. These will look as appropriate, at broad academic developments, new market opportunities, opportunities and threats posed by possible government legislation,

new technologies, broad competitor threats, opportunities to improve the competitive performance of the institution, and opportunities to be derived from collaboration (see Rumble, 1986, for an example of a directional policy matrix applied to distance education). The overall point of the process is to identify the key success factors and generate strategic options open to the institution. Analysis of the options enables the institution to decide which one(s) best fit the institution and its environment. Those which offer the best fit are then chosen to form the strategy.

The strategic plan is then translated into a financial plan which is based on projections of students, course development and production, and capital expenditure over several years (say three to five years). Segal (1990) provides a brief description of the strategic planning process now in place at the Open Learning Agency, British Columbia, while Rumble (1986) describes the overall process, with examples based on his experience in a number of distance teaching universities.

The strategic planning process is supported by a regular, formal planning procedure by which strategic plans are prepared and regularly updated to take account of changes. The whole process tends to be centralist, since decentralised structures are unlikely to identify the synergies which need to take place across organisational boundaries if competitive advantage is to be achieved, or business (i.e. course) portfolios rationalised.

The blueprint which is the end-product of this process is supposed to act as a point of reference when it comes to dealing with particular strategic issues, as and when they arise. In point of fact, of course, this rarely happens – and for very good reasons. SWOT and directional policy analysis show quite clearly the large number of variables which affect planning: demographic trends; market size; market growth rates; market diversity; competitive structure (i.e. range and costs of other providers); political trends; government legislation and initiatives; technological trends; developments in media and communications; attitudes of business to training and education; employment prospects for students; environmental and cultural factors; cost; relationship of these factors to institutional strengths.

While some of these factors (e.g. demographic trends) can be forecast to an extent, many are impossible to forecast with any accuracy. The volume of the information apparently required (for example, information on the course offerings and prices of all potential competitors), means that the information is often biased and inaccurate. Long-term strategic planning often fails to identify opportunities because they are not there when the plan is being drawn up. For example, the National Extension College (NEC) took over the administration of British Telecommunications' Technician Training Scheme in 1984. For NEC, this acquisition was both innovative and highly significant: it was its first major link with industry (NEC, 1990). But no amount of environmental scanning and SWOT analysis would have led NEC to the conclusion that British Telecom might have wanted to divest itself of the scheme in a move designed to improve its financial efficiency prior to privatization.

Underlying formal, analytical strategic planning processes – and particularly forecasting – is the belief that both the factors affecting the institution and the quantitative values attached to those factors are relatively stable. Stacey (1990) argues convincingly that this is not the case. Institutions face change situations in which both the sets of variables affecting them and the parameters within which they operate are highly volatile. In these circumstances, conventional strategic management will not work. Further, empirical evidence suggests that institutions do not use their strategic plans to handle the problems and opportunities thrown up during the period between one review and the next.

If this is so, why are strategic plans prepared? Stacey's answer is that the preparation of a plan gives an impression of structure and control, and provides an opportunity for communication, which raises managers 'comfort levels'. In educational institutions, they may also increase the confidence of the government that the institution is being well-managed. Stacey's argument is that institutions cannot know where they are going. They do, however, know (a) that they are starting from the here and now, and (b) that change will happen whether they like it or not. To succeed, they must:

- define the area of operation within which they will operate. This includes the markets they choose and the technologies or methods they will employ;
- define the set of values (attitudes, beliefs, ideology, culture) of the institution;
- define the direction of the institution, not in terms of where it is going, but in terms of clarity, continuity and coherence. Clarity involves the combination of quality, service levels and price which is being delivered; continuity means backing key activities with resources, and determining to succeed in core activities; coherence means not moving in a large number of mutually contradictory directions;
- continually test the area of operation, direction and values by experimenting with new markets, new technologies, new methods, small-scale investment, etc. If the risks are too high, then the experiment does not take place. If it succeeds, then it shapes the future of the institution. If it fails, the initiative is abandoned and something else is tried.

Such changes are generally small, and their ultimate meaning is unclear. Examples might include, for example, piloting the use of a new technology on a particular course; initiating a scheme whereby the inmates of a particular prison can take a course; advertising in languages other than the official languages of a country, in order to attract students from immigrant groups, etc. Detecting changes and opportunities in the markets requires managers to be close to the action where change is occurring in the environment. Stacey argues that successful detection requires these managers to piece information together, draw inferences and make judgements - and to have ready access to top management who will need to 'feel' the changes, champion change within the organisation, lobby for change and push through decisions accordingly. This requires the use of political processes to place issues on the agenda and focus attention on them. The outcome of a decision can be experimentation, or the appointment of a task group to see the project through. As the project develops, so new

structures may emerge, new roles be devised and new controls imposed.

Stacey concludes that 'in reality, strategic management is not about a grand plan which predetermines everything'. Rather, 'it is the planning of experiments ... [that test] the boundaries of the business' that lies at the heart of strategic management. In this process, the role of the leader and of the top management team is crucial. As Stacey puts it, 'the cutting edge of real strategy is determined by the manner in which [the] political system works, not by the sophistication of long-range planning procedures'. While this can involve formal structures, it is very much about the exercise of power and leadership.

Given this, is there anything to be gained from the planning process? While grand plans have little value in environments subject to high levels of change, the processes of scanning the environment serve a purpose, in that they make managers more aware of the need to do this constantly. Equally, the articulation of organisational cultures through mission and vision statements is an important cohesive force, which should not be underestimated. Strategic management can help managers ask the right questions. It cannot help them fix the future.

IV. Organizing and controlling

At its simplest, distance education can comprise a single teacher who develops and writes lessons and sends them to a few students with questions which the students answer once they have completed the lesson. These assignments are sent back to the teacher, who corrects them and returns them to the students with comments. The students, if they are diligent, read the comments and revise their ideas and lessons accordingly. When Hans Hermod, the founder of what is now Hermods-NKI Skolan in Sweden, began in 1898 to help those of his students who could no longer attend the formal school, his distance learning system was of this type.

Expansion brings growth and complexity in:

- the number of subjects offered, leading to the development of academic departments;
- the number of students studying, so that ultimately academics can no longer both develop the courses and tutor students. This leads to a division of labour between those academics who are course developers and those who tutor and correct assignments. Further specialisation may follow with the development of professional counselling services.

With growth comes the need for increased professionalism and efficiency in the production of materials. Academics can no longer cope by photocopying or duplicating a few sheets and sending them out to students. Growth also enables new media – apart from print – to be used. The number of assignments increases.

Specialist production departments emerge – specialising in print, video, audio, computer-based systems, etc. Warehouses and materials distribution and mailing facilities need to be set up. Assignment handling offices are needed. The growth in tutorial staff engenders its own demands for structures to manage them (recruitment, selection, induction, performance appraisal, career development, discipline). If face-to-face tuition is used, then local facilities have to be identified and tutorials timetabled and put into effect. A local presence is desirable. Production, distribution and presentation needs to be scheduled and co-ordinated. And, alongside of all these developments, are the normal functions of financial management and accounting, purchasing, data processing, buildings and estate management, human resource management, personnel, etc. In broad terms, there is a remarkable similarity in the structure adopted by different kinds of distance education institutions. This convergence derives from the common technologies used in distance education systems, and the high level of imitation that has taken place as particular distance learning systems have 'exported' their structures to newer institutions. Structural differences can, however, be seen between institution-centred, individual-centred, and community-centred systems. There are also some structural differences depending on media choice.

Systems overview

Small-scale institutions can, on the whole, focus much more on the individual students – even if they do not subscribe to a person-centred philosophy. Such institutions tend to emphasize the interaction between the tutor and the learner. In some systems, the tutor's role is central as the negotiator and arbitrator of a learning contract with the student. One of the tutor's main jobs is to direct students towards appropriate learning materials and experiences and to motivate them once they embark on the programme (e.g. Empire State College). In others, the student may choose to 'buy' the tutor's services as and when he or she feels like it. For example, the National Extension College supports students who

are registered on a University of London external degree. The student buys vouchers for correspondence tuition from the College. The College appoints a tutor. When the student feels in need of help, the student contacts the tutor and negotiates an appropriate assignment topic. When the assignment is done, the students sends it with a voucher for marking. The tutor returns the marked assignment to the student, and sends the vouchers, which is redeemable as a cash payment for tutorial services, to the College. In both examples, the College provides the administrative framework within which tutors and students interact, and which ensures that students are enrolled and pay their fees and tutors are appointed and paid for their work. *Figure 4.1* is a 'rich picture' of how such a system might work. A 'rich picture' is a method of recording relationships and connections through pictures and diagrams, rather than continuous prose. Rich pictures are much used in soft systems methodolgy – cf. Checkland and Scholes, 1990.)

In community-centred projects, the facilitator plays a major role in identifying community-based problems and encouraging study groups to form. The facilitator may be supported by a co-ordinating body which can arrange for suitable materials to be designed and delivered to support group learning. The facilitator may encourage group members to design their own materials. The end result of the process may be an action plan which works at individual, group and community level. *Figure 4.2* is a 'rich picture' of how a community-centred education programme using learning materials might develop.

Figure 4.3 is a systems model of an institution-centred distance learning system, based on Kaye and Rumble (1981). The model draws a sharp distinction between a courses sub-system concerned with the development, production and distribution of materials, and a student sub-system, concerned with the admission, registration, billing, allocation to services, assessment and examination of the student. The major output of the courses system – the materials – becomes an input into the central teaching/learning process. Inputs to the student subsystem are new students; outputs are dropouts and graduates.

Figure 4.1 Rich picture of an individual-centred distance learning system

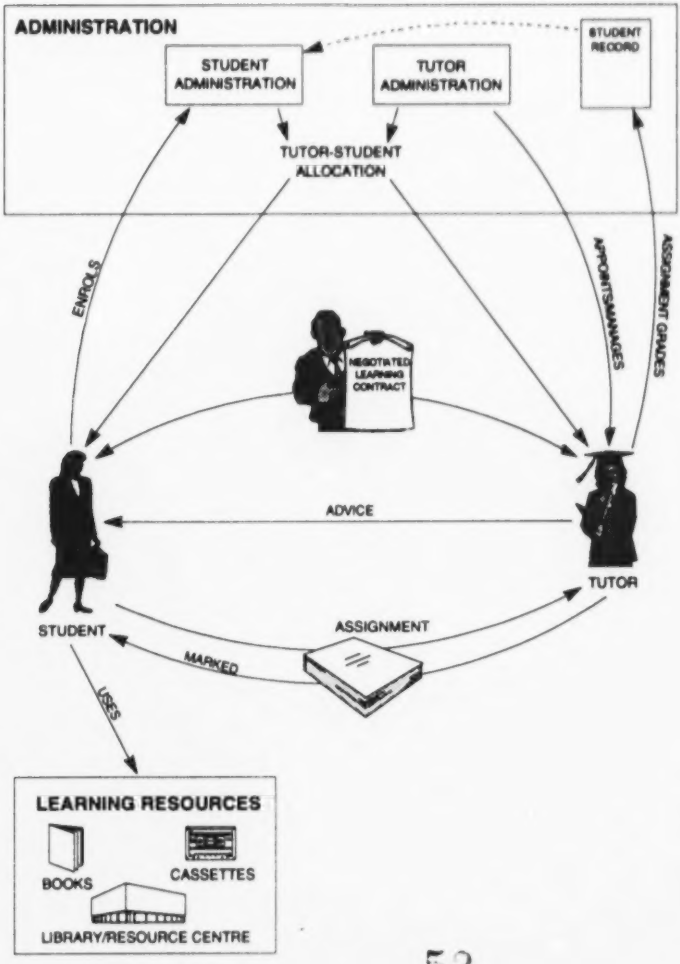


Figure 4.2 Rich picture of a community or society-centred distance education system

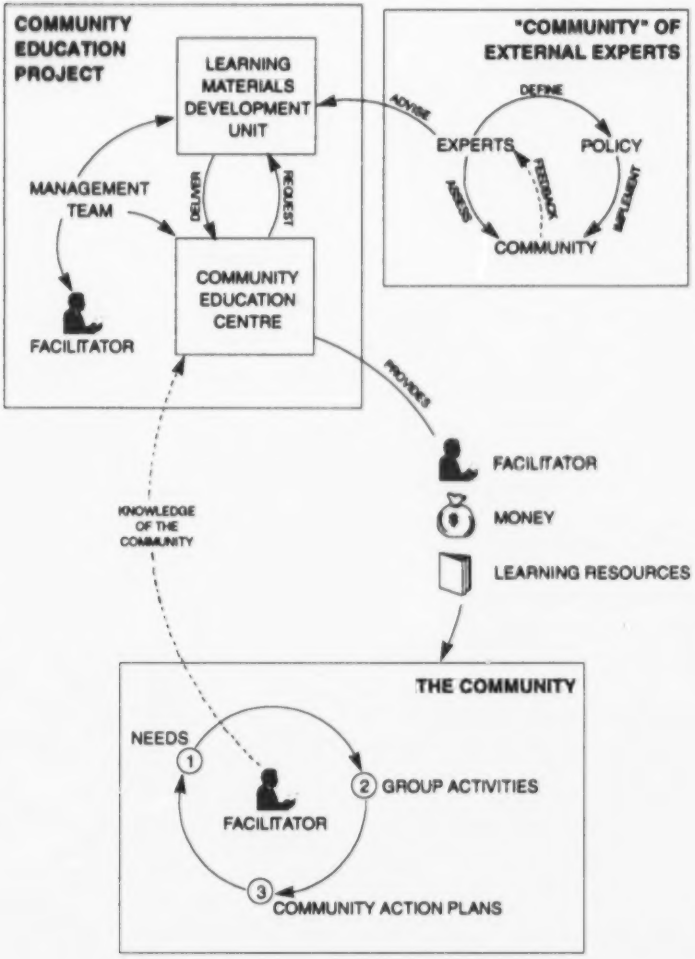
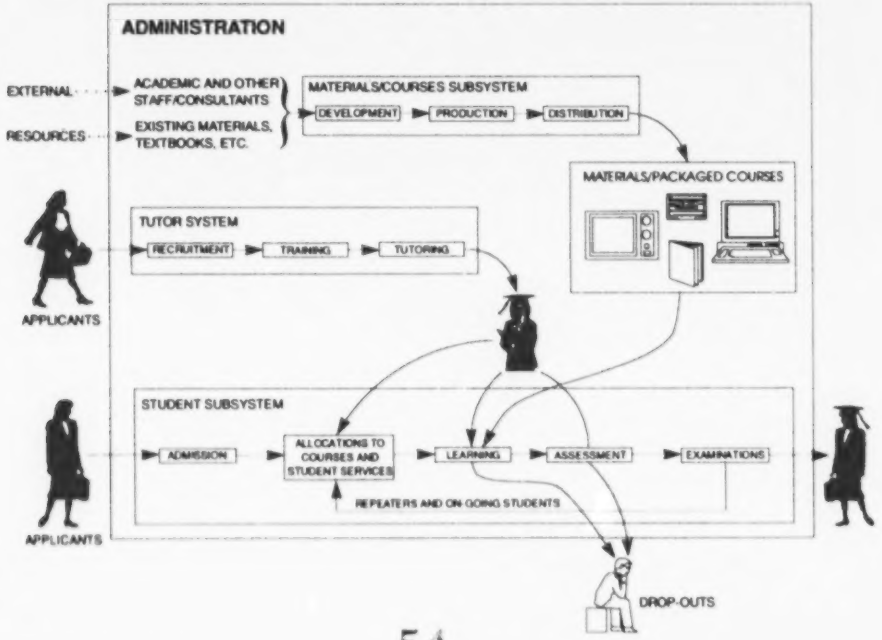


Figure 4.3 Rich picture of an institution-centred distance learning system



Organisational structure

Obviously, there is no single way of organizing a distance learning system. The organisational structure appropriate for a small scale person-centred distance learning system will be very different to that for a large institution-centred system. An institution-centred system embedded in a dual-mode institution is likely to be organised very differently fom a single-mode institution. Nevertheless, similar function will need to be performed, and there are, for example, surprising similarities between the structures in the various distance teaching universities. Generally speaking, the following areas exist:

- central academic faculties, schools, and departments, responsible for curriculum development and the development of materials. They may be assisted by specialist departments of educational technologists;
- a department organizing the tutorial and other local services provided to students and enquirers. This usually consists of a small central co-ordinating section, and decentralised offices at local level;
- a production department, covering print, audio, video, etc (including editing, design, and production);
- a distribution department (warehouses, mailing facilities, etc.);
- an administration unit, covering finance, personnel, data processing, estates and buildings, secretariat, and student administration.

Course development, production and distribution

(i) Course development

Course development is essentially the process which translates academic ideas into a prototype course, ready for handover to the producers. The central role is played by academic subject-matter specialists. Sometimes an integrated approach is taken towards

curriculum planning, materials development (e.g. writing texts and scripts, devising experiments) and devising pedagogic strategies, with all three functions being undertaken by each individual academic. At other times, the functions are separated out between curriculum planners, subject matter experts and educational technologists. Academics will generally not be capable of or willing to take on a number of the other roles which need to be undertaken during the development process. These include editing, graphic design and illustration, audio and video production, etc.

Developing course materials requires a greater investment of academic time than does, for example, the preparation of a lecture. Sparkes (1984) suggests that developing a lecture which requires one hour of student work takes an academic from two to ten hours; an hour of small group teaching takes from one to ten hours of academic time; an hour's video-tape lecture for tutored video instruction takes from three to ten hours and requires input from support staff. Developing a teaching text which takes the equivalent of one hour's student work requires 50 to 100 hours of academic time; an hour's broadcast quality television requires over 100 hours; an hour's computer-aided learning requires 200 hours of academic time, or more; and an hour's interactive video requires 300 hours or more. All these technologies require considerable inputs from technical experts. Not surprisingly, therefore, developing anything other than a simple course requires an input from a team of people.

Stone (1975) suggests that there are four different approaches to the organisation and management of the development phase:

- in the specialised approach, the various tasks curriculum planning, writing, editing, design, etc. are allocated to professional staff. Each specialist works on his or her own tasks, the analogy being with an assembly line;
- the chain approach modifies the specialised approach, in as much as each specialist works with the assembly line specialist immediately before and after him or her;
- in the interdisciplinary team approach, persons from different specialities are brought together and given joint

responsibility for the overall development and production of the project or course;

- in the matrix approach, projects are staffed by appropriate specialists who are borrowed from functional departments (Academic Faculty or Department, Editing, Design, etc.) to perform specific tasks for the group. Such specialists continue to have a functional responsibility to their parent department, but on a day-to-day basis are responsible to the project head.

The main problems with the specialist approach are those of discontinuities of work, poor communication between specialists, and the fact that there may be no integrated overview of the project. These are very likely because the specialists come from widely different functional groups. The chain approach tries to ameliorate the situation, but only the team and matrix approaches can provide a really satisfactory basis for co-operation and interaction.

Some courses are so large that they have to be developed by a number of academics, editors and graphic artists. Although it is never easy to achieve a fully integrated course where multiple authorship is involved, the chances are much higher if authors work together in a team, thrashing out the curriculum, and working through numerous drafts of the course materials. Such a 'course team' approach, which is found in a number of distance teaching universities (e.g. the British Open University, Athabasca University in Canada, Deakin University in Australia), tends to require a longer lead-in time and incur higher development costs. While course teams can function well, they can also induce considerable stress in individual members. Consensus on aims, objectives, course content and pedagogic strategy can be difficult to achieve, and mutual criticism of each other's work can be destructive rather than constructive (Linder and Lonsdale, 1975; Nicodemus, 1984). The leadership powers of the project head are crucial to success. In the British Open University it is not uncommon for relatively junior academics to lead teams which include senior academics whose own responsibility is limited to writing. In more hierarchically conscious societies, and with some

status-conscious individuals, this may be impossible to achieve (Gough, 1978; Crick, 1980). Some writers favour the election of a leader from within the team. Others favour the appointment of a non-academic manager as team leader (Mitchell, 1978). Whatever the case, a disorganised leader will result in a disorganised team, while a leader who cannot handle people sensitively can positively aid the collapse of the team. Perry (1976) argued strongly that team leaders should be appointed for their management skills.

The course team approach tends to be used in institutions with a core of full-time, permanent staff. A number of distance learning systems employ consultant writers and producers on short-term contracts, rather than have full-time staff (e.g. National Extension College, United Kingdom; Universidad Estatal a Distancia, Costa Rica). This reduces costs considerably but it has its drawbacks. The writers and producers are rarely able to meet to thrash out course aims, objectives, content and teaching strategy, or to monitor progress. Generally, a chain or specialist approach is adopted in which individual academics work on particular sections of the course but do not meet academics working on other sections. Integration is provided through the work of curriculum planners and/or academic editors, who define the curriculum and try to pull the disparate drafts and styles together into an integrated whole. This structure can be very difficult to work in. First, many authors find it difficult to write to a pre-defined curriculum. The process of writing leads to changes in content which flow naturally from the creative process. In such cases, the curriculum is either ignored, or the authors turn in work to which they do not feel committed. Secondly, it becomes very difficult to ensure commonalty of level and house style (for example, in respect of the use of in-text self-assessment questions), and integration of content between one unit and the next. A great deal rests on the competence and expertise of the academic editor.

The final course prototype is a product not just of the work of academic content specialists, but of editors, graphic designers and illustrators, producers of audio-visual materials, experts in computer-assisted learning, etc. Academic editors can find it

difficult to compile the work of such disparate experts together. The team approach can help to overcome the discontinuities that normally exist between the work of such experts. It will not, however, necessarily transcend the boundaries between roles which can occur where there are major discontinuities of technology (for example, between academics and broadcasters). In general, the greater the discontinuities of technology, the stronger the forces towards differentiation of role. This is particularly the case where the skills of some members of the group are so specialised that others cannot aspire to them, so that some interchange of role or even any real understanding of roles between members of the total group becomes impractical or impossible (Miller, 1959). Evidence from a number of distance education systems suggest that discontinuities do occur between academics and broadcasters. This suggests that this relationship, where it exists, needs very careful consideration and management.

The notion of distinctive competencies is present in distance education systems by virtue of their need to use a variety of specialist professional staff. These differences can be exaggerated by individual staff so that the preservation of role distinctiveness becomes a primary aim (Rumble, 1981). Even when teams are established and have scope to modify roles, "usually the team ends up dividing the tasks according to the background and interests of the members, which is just a reversion to the specialist approach" (Stone, 1975). The best course teams seem to allow some fluidity, so that an editor whose academic background involved a specialist study of some aspect of the subject is able to contribute to the writing of the course where this is appropriate. Certainly, Stone and Oliveira (1980), studying seven Brazilian educational television systems, concluded that the fewer the tasks assigned to each person (i.e. the more specialised the role of that person), the greater the conflict in the project. They also found that ambiguities about final responsibilities and the criteria for performance evaluation increased conflict - suggesting once again the importance of team leadership. These arguments led McAnany et al (1982) to point to strong arguments against organisational structures where roles are highly defined. The arguments against

strong role differentiation and distinctive competencies seem to be compelling.

Finally, there is the question of checking on the quality of the developers' work. One of the issues faced by distance learning systems is the need to ensure that the course materials are of an academic quality appropriate to the level of the course; of a pedagogic quality appropriate to the level of the learners; integrated with any other materials being developed for the course; and acceptable in political, religious or other terms. To some extent, academic editors and fellow course writers and producers can help, by reading and commenting on successive drafts of the texts, scripts, etc. However, this will not get round the problem of 'group think', in which the whole group ignores biases or evidence or poor quality, or the tendency noted by some to skimp the reading of other authors' texts as deadlines for the handover of one's own text comes nearer (Newey, 1975; Mason, 1976). One way round this is to appoint external assessors to read and comment on the course as it is developed – and to be prepared to postpone production if their comments warrant it.

(ii) Production

The production of materials is a field where management will need to rely on the technical expertise of a number of people skilled in print, audio-visual, broadcast, and computer-assisted learning. Technical advances are now eroding the sharp distinctions which used to exist between development and production (as is the case in respect of desk top publishing and hypermedia development). Nevertheless, there are a few key factors which managers of distance learning systems will need to bear in mind.

The first is to match production capacity to demand. Distance education shares some of the characteristics of manufacturing industry. Industrial manufacturing is based on the principle of standardisation of product. Large scale distance education systems may require the bulk production of many thousands of items, each tailored to the specific needs of a particular course. Production

runs therefore tend not to be very long, even when items are being produced to meet several years' needs. Each item needs to be identified and specified in advance of production, and the number of each item required estimated, so that production can be scheduled within the capacity of the production plant. Since production facilities are expensive to purchase and staff, aggregate production needs across all products will need to be estimated – usually for several years. There is, however, a significant difficulty. Estimating aggregate production needs depends on an academic plan which specifies the number of courses which will require production facilities, and the kind of production required, perhaps two or three years before academics have begun to work on them. This is done more easily if there is some kind of standard course model, which specifies the number of texts, audio-cassettes, etc. which a course will have. However, unless one is careful, the nature and capacity of the production facilities become an inflexible constraint which determines what an academic can produce, and what materials need to be used on a particular course. The standard course model so necessary for estimating future production then becomes a hindrance to flexibility and academic innovation. Most institutions nevertheless have a limited number of standard course models to which course developers must adhere. Innovation then comes from the approval of special pilot projects which are allowed to depart from normal practice, and experiment with new media and production methods.

Secondly, academics have to meet production schedules which are based on the scheduling of not only the materials for which they are responsible, but the materials developed by other academics. Late handover disrupts these schedules. Significant time and effort can be spent in scheduling production and ensuring that those responsible for the development of materials know when to hand it over. This is done using standard control mechanisms such as Gantt Charts and networks based on Critical Path Analysis. Unfortunately, the air of precision implied by such techniques tends to be 'largely spurious' (Lewis, 1971) as specifications change during the final stages of development, the development of individual items is completed ahead or behind

schedule, etc. These changes can play havoc with the master schedule. This is not, however, an excuse for not scheduling. As Lewis comments, 'at the very least, it disciplines one's thinking and enables the major problems to be confronted in a systematic way. Secondly, it is necessary to remember that some planning and scheduling must go on – otherwise the course material would stand very little chance of being produced on time, and to the required standards'. And – in the end – the purpose of the schedule is to ensure that material is in the students' hands when they need it. At least in paced systems (i.e. those with a fixed academic year or terms, and set periods for students to study materials and undertake assignments), the production schedules will be determined by the individual course study schedules.

While these are the features of the production process that most impinge on individual academics and their support staff, there are a number of more strategic decisions which need to be taken. These are, very briefly:

- the balance to be drawn between using outside producers (e.g. commercial or government printers, commercial or national broadcasting authorities) or doing the production in-house. While in-house production has the advantages of control over the facilities, it can significantly increase the costs of setting up an institution, and increases the number of specialised functions which will need to be managed through the system's own hierarchical management structure. As a general guide, external production can be more efficient, but some internal capacity is a useful fall-back to have available;
- assuming in-house production, the balance to be drawn between a centralised and a decentralized production unit. A centralized one has the advantages of economies of scale, easier control over standards and quality and the increased chance of affording more sophisticated systems (given the volume of work and expertise that can be concentrated in a centralised unit). Against these are the advantages of decentralised, local departmental production units, which can work more closely and usually less

bureaucratically with the academics, and reschedule work more rapidly to suit local circumstances and priorities. As a general guide, the more creative elements of the development-production process (e.g. editors, graphic designers) need to work closely with the academics. However, standard production processes (e.g. printshop) benefit from centralisation;

- the balance to be drawn between long production runs, with the economies of scale inherent in these (for example, lower ratio of machine set-up time to production run), against the benefits of just-in-time production, which reduces inventories and hence storage. The balance here has shifted towards just-in-time production. However, it then becomes important not to miss production schedules.

(iii) Distribution

Warehousing and distribution is another technical area. Generally, it will not impact on the academic management of the institution. However, academics need to remember that they must clearly identify the full contents of every package which needs to be sent out to students (and tutors) taking a specific course. Of particular concern to management is the control of inventories of new materials (e.g. paper stocks), work in progress, and finished goods, and policy regarding the level of stocks held. How distribution is undertaken (e.g. through the postal service, courier services or by the institution's own lorries), and what the delivery point is (e.g. students' homes, local centre) will depend on local circumstances.

Student services

Student services exist to ensure that students are admitted to the institution and enrolled on courses; allocated to tutors and, where appropriate, counsellors; told what is expected of them in terms of their formal commitment to the institution (e.g. payment

of fees, adherence to regulations), told where and when to appear to sit any examinations, and generally provided with help to get them through the system. This help may include advice on and help in respect of:

- choosing what to study (pre-application enquiries and course choice guidance). It is important to be clear that the successful outcome of a pre-application enquiry is not necessarily an application. A successful outcome may result in a decision to do a course with another provider, or to postpone entry pending completion of a preparatory course. Successful counselling will therefore depend on a network of contacts with advisors in professional educational guidance agencies and admissions advisors at other institutions. Choice of course will also relate to career aspirations, which links to careers guidance (see below);
- the subject matter of the course (tuition);
- personal problems which make it difficult for them to study (counselling). It is important here to recognise the boundaries around this activity. For example, psychological, health and marital problems may all pose difficulties. The counsellor is there to advise on these only as they relate to the student's studies. He or she is not, for example, employed to be a marriage guidance counsellor. Here again, a network into professional guidance services may be valuable. However, it is wholly appropriate to advise disabled students on equipment and aids which may enable them to study at a distance, and some distance learning systems have now built up considerable expertise in this area;
- careers and further study. Here again it may be appropriate to link into other guidance services, either professional careers advisory services or, in the case of further study, educational guidance agencies:
- institutional regulations affecting study (e.g. credit transfer, excluded course options, mandatory courses, etc.) and administrative procedures (e.g. arrangements for payment

of fees, withdrawal from courses, change of address) and appeals against administrative decisions;
- issues requiring specialist advice - for example, issues facing disabled students or prisoners.

Much could be written on the best way to tutor and advise students and on the skills which are needed to do this successfully. This booklet, however, confines itself to issues related to the management of these services. What is certain is that, given the diversity of the student population in many distance teaching systems, the kind of advice and help needed by individual students and enquirers, and the level of support required by different individuals, will vary enormously.

(i) Approaches to student services

Managers have a number of strategic options available to them in planning and organizing student services. Among these are the following:
- Are the services to be delivered at a distance (e.g. by post or telephone) or face-to-face?
- Are the services to be delivered to the students' homes, or in some local centre?
- To what extent does the institution wish to encourage students to interact among themselves?
- Do the services need to be delivered synchronously (i.e. in real time as in face-to-face discussion, or on the telephone), or can they be delivered asynchronously (i.e. with a delay between the giving of the information and its receipt, such as occurs in postal correspondence)?
- Can the service be generalised and made applicable to all students, and hence made available through booklets, leaflets, or computer-based advisory services (e.g. advice on study skills, examinations techniques, careers), or does it need to be tailored to the individual (e.g. advice to disabled students on study aids)?

In general, a responsible distance learning system needs to ensure that the vast majority of transactions with students can be

handled routinely, using standard procedures, forms and records. Records need to be accessible. The ideal system is an 'airline booking' system in which administrative staff have on-line access to students' records. Experience at the Open University, United Kingdom, indicates that the two most common changes in information about students are changes of address and changes of current course (Friedman, 1984). Standard procedures for dealing with such changes efficiently and quickly are vital if other tasks (for example, the mailing of course materials to students' homes) are to go smoothly. However, a proportion of students will have problems which need to be handled individually, and the support system needs to be able to deal with such problems efficiently, effectively, and humanely.

(ii) Administrative processes: admission, changes to student status, student allocation to services

The vast majority of administrative processes are routine transactions which can be completed using standard procedures (e.g. course choice forms, choice of examination centre forms) which can be sent to and returned by students through standardised communications channels (such as postal service to and from the relevant administrative office). Standard letters and administrative publications can be used to tell students what is expected of them. In paced systems, this will generally involve completion of defined procedures by a pre-determined date. The main requirement is that information is recorded accurately and quickly. On-line and demand processing plays an important role here.

(iii) Advisory and counselling services

A great deal of the advice and counsel given to enquirers, applicants and students is of a routine nature, and can be provided through standard publications (leaflets, booklets, prospectuses). Basic information on those enquiring about entry to the institution should ideally be logged for later analysis, with a view to

informing marketing decisions. Standard counselling (e.g. advice on study techniques, examination techniques, etc.) can also be provided through publications. The institution also needs to provide an enquiry answering service which can receive queries by post, telephone or in person, diagnose needs, and provide answers, either verbally or by sending out standard information.

Some students will need more detailed, personalised advice and counselling. Trained advisors and counsellors will need to respond to these queries with advice on educational options, course choice, careers, study problems, etc. These services may be accessed in person, by telephone, or through the post. Generally speaking, difficult issues will require discussion either face-to-face or on the telephone. Where appropriate, students can be referred to more specialised advisors (e.g. persons trained in responding to the needs of disabled students). Front-line advisors will need to be trained to recognise situations where enquirers or students could benefit from more in-depth counselling, and to know to whom they should refer individuals for specialist advice.

Given the high proportion of adults among distance students, advisory and counselling services ideally need to be provided out of office hours (e.g. in the evenings and at weekends).

(iv) Assignment handling and correspondence tuition

Correspondence tuition is the most common form of assessment in distance education. It has two possible functions. The first is to provide help to the student in the form of comments on his or her work. The second is to grade the student's work for assessment purposes. Administratively, the task is to ensure that assignments are marked as quickly as possible so that they can be returned to the student with the tutor's comments. This is important, since there is evidence of a correlation between student drop-out and long assignment turn-round times (Rekkedal, 1983). Ideally, there will be a monitoring system which will indicate whether or not the tutor is turning round the assignments within a reasonably short time.

The assignment handling system should also be able to record grades (and possibly analyse them by tutor, to identify tutors who consistently mark too harshly or leniently). It should also enable scripts to be intercepted at random or selectively, by tutor, so that the work of tutors can be monitored.

(v) Face-to-face, telephone, and two-way radio tuition and residential schools

Administrative arrangements will need to be made to schedule and, where appropriate, provide technical support and equipment for face-to-face and other forms of tuition. Where appropriate, technicians will need to be available to watch for and rectify equipment failures. Face-to-face sessions are usually held in local centres, which are sometimes owned by the institution, sometimes provided by the local community, and sometimes rooms in other institutions provided free or for a fee. In all cases, there is a need for a local co-ordinator and for janitors who can open up and lock up, and arrange rooms to suit particular teaching needs.

It is usually fairly easy to arrange regular evening or weekend face-to-face tutorials in localities where there are a reasonable number of students taking the same course, but costs will normally preclude this if there are only one or two students. In such cases, it may be better to concentrate the resources in a weekend school – to which students are asked to travel. In distance learning systems operating over wide areas and dealing with both concentrated student populations and very remote students, it helps if the precise pattern of tutorial support provided can be adapted to local circumstances. In some cases, telephone and two-way radio tutorials may substitute for face-to-face contact.

Some systems require students taking certain courses to attend a compulsory residential school lasting from two days to a week.

(vi) The impact of new technologies

The development of new technologies is having a major impact on student support services – providing possibilities for

student access to information databases, self-diagnostic packages (e.g. to help in careers guidance), and computer-mediated communication. The latter (a mix of computer conferencing and electronic mail) provides opportunities for students and tutors to interact asynchronously in a whole variety of conferences (e.g. tutorial group conference, all tutors on a course, all students on a course, all tutors and students, tutors and course developers, etc.) (c.f. Mason, 1989). A conference system needs to be managed by providing individuals with rights of access to the system and to particular conferences, specifying their level of access in each case (e.g. read only, or write and read rights). Conferences also need to be managed by a facilitator. But, once set up, the system allows new channels of communications to open, providing an environment within which interactive learning can take place (Harasim, 1989).

(vii) Examinations

Most distance-taught courses end with a formal examination. In some systems, students may have to take mid-course examinations as well. Normal conditions of security apply – e.g. the need to guard examination papers, and to invigilate the actual conduct of the examinations. In addition, arrangements need to be made to hire suitable examination halls in localities to which students can travel fairly easily, and make special arrangements for the examination of very remote students. Once the examinations have taken place, arrangements have to be made for scripts to be marked, and for markers' work to be monitored. It is best if the scripts are not marked by a student's usual tutor.

(viii) Discipline

Procedures and codes of practice covering disciplinary offenses (e.g. cheating in examinations, plagiarism in the writing of assignments) need to be laid down and available for use if necessary.

(ix) Local centres and decentralisation

Many distance learning systems have developed a local support structure which may be one-tiered (concentrated in local centres) or two-tiered (comprising local centres managed by regional offices). Generally speaking, regional offices are an additional overhead expense; decentralisation of activities to regional or local centres also increases expenses, since it runs counter to the general principle that centralisation gives economies of scale. The decentralisation of activities at local- and regional-level is justified, however, if it provides a local face to what might otherwise be a remote national institution. It makes co-operation with local educational institutions (concerning the use of their facilities) easier; facilitates recruitment, training and monitoring the work of local tutors who are also remote from the centre; gives students the opportunity to meet representatives of the institution face-to-face; greatly reduces turn-round time on some transactions; and makes for more effective local marketing and publicity. In general, decentralisation enables institutions to provide a better service, but at a cost. It also raises issues related to consistency of policy across the institution as a whole. If consistent standards are to be maintained, then regional and local centres need to operate within clear guidelines and criteria, which govern their interpretation of institutional regulations. However, some leeway must be allowed to enable local staff to respond to local circumstances – particularly in matters which do not affect the overall academic integrity of the institution.

The management of tutors and counsellors

All distance learning systems need to provide opportunities for students to interact with tutors and possibly counsellors (where a separate counselling role is identified). How they are managed will depend on whether or not:

- the tutor-counsellors are full-time or part-time employees;

- the tutor-counsellors are based on campus or are, like the students, at a distance;
- the tutor-counsellors have been involved in the development of the course;
- the tutorial and counselling roles are combined in one person or whether the two roles are separated.

(i) Full-time versus part-time contracts

Whether or not to create a permanent full-time tutor-counsellor force or to rely on part-time staff whose main employment lies elsewhere, is a major issue for distance learning systems. Full-time staff can be managed more easily than part-timers. Any investment in training is likely to pay-off more where staff are employed full-time and are likely to remain employed. On the other hand, full-time correspondence and face-to-face tutoring is an extremely boring and repetitive job and it is unlikely that it would be possible to recruit and hold good tutors. The job is boring because a course is not being developed but supported and designed by others. Also, as courses are withdrawn and replaced, so the subject matter expertise of tutors may become outdated. Employing part-time tutors is one way round this but it is harder to control their work and their continued employment is subject to a degree of tolerance on the part of their main employer (where they have one).

(ii) On-campus versus remote tutors

It does not matter where correspondence tutors are located, and in small distance learning systems they may be located on-campus, where they can interact with course developers. Indeed, in some small systems, or on courses with small numbers of students, the course developers may also do the tutoring. (There is a separate argument that it is good for all course developers to tutor students on their own course, since only by doing this can they see how the delivery is going). However, for face-to-face tutoring and counselling, it is better to appoint local tutors and

counsellors. In any case, in large distance education systems with lots of students on each course, there are unlikely to be sufficient central staff to tutor all the students on the courses, and it then becomes necessary to recruit correspondence tutors wherever they may live. As soon as one has tutors and counsellors remote from the institution, one has all the problems of managing a hierarchical and professional relationship at a distance. The need to minimise this distance is a powerful argument for having regional centres.

(iii) Tutor involvement in course development

Just as course developers should undertake some tutoring, so it makes sense to involve a few tutors in developing new courses. This brings practical experience of teaching a course into the course development process. However, most tutors will not be involved in developing courses. Course developers therefore need to develop briefing and training materials and sessions to orientate tutors to the underlying rationale for the course, and the pedagogic strategy it is planned to use. They will also need guidance on marking schemes and on the standards they are to apply in marking assignments and examinations, including bench-mark scripts. Much of this can be done through a tutor's course manual.

(iv) Tutoring and counselling roles: combined or separated?

Few teachers confine themselves wholly to matters related to the subject matter of a course. Thus while tutors are employed primarily for their subject-matter expertise, they would also be expected to provide advice on study skills and examination techniques. Enquirers and applicants who are not yet enrolled on a particular course and hence do not have a course tutor, and students whose questions and concerns go beyond the competence of individual course tutors, also need access to advisors. This is the role of professional advisors (e.g. enquiries clerks, careers guidance advisors, etc.) and counsellors. Counsellors also have an important advocacy role, in that they can be expected to represent

a student's interests to the institution and seek the relaxation of regulations (e.g. exemption from the obligation to attend a residential school, which may need to be granted to students who are ill, in prison, or are about to or have just given birth) or the application of special circumstance regulations (e.g. special examinations for students who were ill on the day of the main examination). Finally, a counsellor may be the first point of call for a student who wishes to complain about a tutor's performance (e.g. appeal against grades; complain about non-return of marked assignments). Some systems try to link a student to a particular counsellor during the whole of his or her studies with the institution – on the basis that this provides a continuity of care and a relationship that is important, and transcends the essentially ephemeral relationship that students have with a course tutor. Finally, the personal qualities which one seeks in counsellors may be very different to those required in a tutor. This suggests that there are several reasons for providing a separate counselling service for distance students.

(v) Recruitment of tutors and counsellors

The criteria for appointing tutors and counsellors are different, the former being selected on the basis of their subject expertise (which suggests that many of them will be working in education as teachers/lecturers, or practising professionals), the latter for their human relations skills. All will need to have an interest in and commitment to distance learners and, in many cases, adult students. Appropriate selection procedures need to be devised.

(vi) Induction and training

The induction and training of tutors and counsellors is vital. Both tutors and counsellors will need to be inducted into the distance learning system, including its procedures and regulations governing student progress and assessment. They will also need to be inducted into their roles. For tutors, these are likely to differ significantly from any full-time teaching job they may occupy, in

the sense that they will not be responsible for devising and teaching the course, but rather for supporting students who are following a course which has been developed by others.

Tutors will need to make themselves totally familiar with course materials, and be briefed on assessment practices and standards, and those parts of the course which the developers feel may need to be gone over in tutorials. Much of this can be done through carefully written briefing and training materials. However, some of it can best be got over in face-to-face training sessions, where counsellors and tutors can take part in exercises and discuss the results with the full-time staff who manage their work. Apart from developing a 'club' atmosphere among tutors and counsellors and making them feel valued members of an academic community, these sessions can also be used to exemplify the kind of tutoring the institution wants.

Since the course materials supplant formal lectures and note-giving lessons, it is not desirable that – in face to face sessions – tutors should give their own courses to the students (via lectures and note-giving sessions). They need to help the students engage with course concepts through active, participative learning and exercises. They should not carry out individual remedial work in face-to-face seminars with their students, since, unless the whole class shares a problem, this is likely to be a waste of time for most of the students. Remedial work is best done privately with individual students over the telephone, or in private discussions after the group tutorial has ended. Training sessions can help tutors to come to understand thei role better and become better tutors.

(vii) Monitoring of tutors

The purpose of monitoring is to ensure that tutors and counsellors are doing their job properly. It is obviously not possible to monitor every interaction between a student and a tutor or counsellor. It is also not possible to monitor some interactions at all (e.g. telephone calls). One can, however, monitor copies of letters of advice sent from counsellors to students and gain an idea

of a counsellor's competence from the way in which individual student cases are put forward to the administration or the counsellor's manager. It is relatively easy to monitor the work of correspondence tutors by intercepting their scripts and checking on the grades they give and the quality of the teaching comments they made to students. This is generally done on a random basis. There are also ways of analysing grades given automatically, to identify tutors who appear to mark too leniently or too severely. Where it seems as if a tutor's work is generally unsatisfactory, monitoring can be increased to cover all their scripts. The work of new and inexperienced tutors can also be monitored more heavily. It is also useful to periodically review the work of long-serving tutors to make sure that their standards have not slipped.

(vii) Discipline

A code of practice needs to be in place to cover any disciplinary offenses by tutors or counsellors. These will include conduct that is prejudicial to the maintenance of academic standards (e.g. disclosure of examination questions prior to an examination), unreasonable conduct in relation to students (e.g. sexual harassment), and incompetence.

(viii) Tutor and counsellor records

Detailed records will need to be kept on tutors and counsellors, and arrangements made to pay them in accordance with whatever payment mechanisms are in force. These can include a mix of flat-rate payments (e.g. for familiarising themselves with a new course), piece-rate payments for tutorials and attendance at induction and training events, and for marking assignment scripts, and per capita payments (related to the number of students they are allocated).

Control and the issue of quality

The day-to-day management of distance learning systems requires constant attention to detail, all with the aim of controlling changes to the basic input-output flows through the business. These include, for example,

- 'marketing and sales' control – that is control of the whole process of securing applications and re-registrations from learners, and linking these to the provision of materials and services;
- operations control, covering the control of materials and services outputs, quality and reliability, flexibility and responsiveness, timely delivery to the learners (and their tutors and counsellors), capacity utilisation of the production and delivery systems, efficient use of human resources, efficient use of materials;
- the control of materials procurement and availability (e.g. paper for the printery, blank audio-cassettes, materials for graphic designers, etc.);
- control and maintenance of buildings and equipment;
- control over costs and revenues;
- control of debtors and creditors;
- control of capital expenditure and financing.

The existence of adequate control systems is a pre-requisite for the efficient and effective management of the institution. In designing systems, however, care must be taken:

- not to overload top managers with too much information. One way round this problem is to delegate, allowing top managers to concentrate on what is really important.
- to provide information on how the institution is performing, and is likely to perform in the short-term future. A major danger is an excessive concentration on summary financial data at the expense of information which measures how the institution is doing in terms of applications, drop-out rates, quality of service measures, etc.

What follows is not an exhaustive list of management information needs, but an indication of some of the key variables which need to be monitored.

(a) *Course development*

- market research on needs and likely demand for courses in particular areas;
- range of courses available, relative to needs and demand;
- justification of individual course proposals in relation to market demand;
- quality of academic staff (full-time and consultants) assigned to develop a course;
- comments of external assessors on the academic and pedagogic quality of the material;
- production rates (number of 'standard courses' developed per full-time equivalent academic staff member);
- comments of tutors on the course materials;
- number of student complaints about course content;
- extent to which a course is adequately specified in terms of media and delivery requirements, and relationship of this to the planning of production and delivery systems;
- adherence to the development budget and reasons for variance;
- adherence to the development schedule and reasons for variance;
- extent to which academic staff are aware of the pedagogic capability of existing or potentially available media.

(b) *Course production*

- quality of the materials produced;
- human resources utilised on production, relative to similar processes elsewhere (e.g. publishers);
- adherence to production budgets and reasons for variance;
- adherence to production schedules and reasons for variance;
- level of utilisation of internal and external production facilities;
- relative cost of internal and external production facilities.

(c) *Course delivery*

- delivery of the correct course materials, to the right address, in due time;
- keeping within the budget for the delivery of services (and explaining the reasons for any variance);
- delivery of materials to schedule and reasons for variance.

(d) *Students*

- proportion of the target population who knows about the programmes and courses that are available;
- proportion of the target population reached by the distance leaning system;
- numbers of enquiries and applications received;
- number of applications and students against targets;
- reasons given by enquirers for not applying;
- number of students (overall, and on courses);
- drop-out rates by course;
- reasons for drop-out rate;
- continued monitoring of students' progress, with arrangements to contact those who have fallen behind or seem to be in danger of dropping out;
- student pass-rates.
- persistence rates (proportion of students who embark on a further course, having finished an earlier one);
- graduation rates.

(e) *Student services*

- range of services available, relative to needs and demand.
- proportion of clients aware of the services available (e.g. scholarship funds, entry qualifications);
- accurate comprehensive information in all handbooks, circulars, etc. sent to enquirers, applicants and students.
- number of students taking up services;
- rapid and courteous treatment of all enquiries, whether by letter, telephone, or in person;
- the provision of correct and appropriate information to enquirers, applicants and students;
- the accurate maintenance of student records, including course statuses (applicant, registered student, course

graduate); fees and payments due, paid and outstanding; addresses; tutor, examination centre and other allocations,
- times of availability of student and other services (e.g. local centre opening times, broadcast transmission times) relative to the times when students can use these services;
- turn-round times on student assignments;
- the quality of tutors' comments on students' assignments.
- analysis of student complaints on services;
- number and reason for detected administrative errors;
- the quality of the tutors and counsellors recruited;
- the proportion of tutors and counsellors attending briefing and training sessions;
- the cost of student services per course or student, relative to fees (thus providing an indication of the contribution from fees towards the cost of overheads);
- keeping within budget for the delivery of service (and explaining the reasons for any variance.

(f) *Environment*
- range and price of distance taught and flexible learning programmes available from other providers;

This list is far from exhaustive. It does, however, indicate the breadth of control which managers of distance learning systems must exercise if they are to ensure that:
- operations run smoothly, efficiently and effectively.
- schedules are met;
- budgets are adhered to;
- quality is maintained;

There is a sense in which *quality* is both a technical issue, concerned with (a) the quality of the product (e.g. the materials, the comments provided by correspondence tutors on assignments), and (b) the quality of the process (e.g. of counselling, tuition, student administrative processes such as the allocation of students to tutors, the booking of rooms, etc.); and also an existential issue, concerned with ethos and culture.

There is a tendency to concentrate on the quality of the learning materials since these are the most visible part of the teaching-learning process. But, as Sewart (1989) points out, "the

production of a standard high class package of learning materials through a quasi-industrialised process in no way guarantees learning on the part of the student. ... There is a need for interaction between students and or between students and teachers in order that the experience of the teaching package can be properly obtained". This requires management to invent ways of making the social interactions between students and those they meet or communicate with (tutors, counsellors, administrative staff) a satisfying social event. The quality of the service provided to enquirers, applicants, and students (and their sponsors) is essentially the result of the way people perform in specific situations. Many of the interactions take place in private and are not susceptible to direct observation by management – though poor performance will be reflected in student dissatisfaction. Management's task is thus to design roles in ways which use human capacity and energy to learn skills quickly and hence to maintain them while keeping alive their enthusiasm. Normann (1984), speaking of service industries in general, maintains that 'there is no other way of achieving high quality in every single contact [between a customer and a representative of the institution] except by maintaining a pervasive culture and making sure that every employee not only possesses the appropriate skills but is also guided by the appropriate ethos". This supports the argument that there is a strong need for management to pay particular attention to training programmes which will provide staff with appropriate skills, develop a sense of trust between tutors, counsellors, clerks and their supervisors, and create an all-pervasive organisational culture dedicated to quality.

V. Budgeting and financial control

All institutions need to budget and exercise financial control. Budgets have a variety of purposes. For example, they are an attempt to provide a realistic estimate of what will be achieved by the existing institution in likely market conditions; they are a target which people believe in and strive to achieve; and they are a standard against which performance can be judged. Over-emphasis on the latter function leads to the erroneous belief that budgets are fixed and cannot be revised as time passes. In fact, conditions change and with them, the estimates of likely future expenditure. The needs for credibility, motivation and realism all suggest that budgets should be reviewed and revised where it is appropriate, as the year progresses. Indeed, the pace of change is such that the idea of a fixed annual budget is unrealistic. Budgets need to be continually monitored and flexed to allow for changes in circumstances.

Budgets should be prepared by managers in consultation with accountants. Managers need to be satisfied that the budget is realistic, reasonable, and achievable. It is particularly important that they should not be held accountable for under- or over-spends which they cannot control. It is therefore important to understand what affects expenditure and revenue. It is also important that the targets are not so badly out-of-date as to be unrealistic and unachievable. This suggests the need to have much shorter intervals of control than the normal annual budget cycle. A rolling quarterly-budget period provides such a cycle. When variances do occur, discussion should focus on the issues which give rise to them.

Preparing the budget

Like all enterprises, distance education institutions need to start with their revenue budget for the year. Revenue may come from a variety of sources including general (non-specific) government grants, earmarked grants for specific projects, and income from fees and sales of materials. Income may be restricted to particular academic programmes, so that a first step in any budgeting process is to define the programmes which will form the focus for budgeting.

For any programme, the institution needs to establish the revenue budget. This will depend upon the level of sales achieved (including sales of materials and revenue from enrolled students). Thus the budgeting process should start with the sales forecast and grant forecast. Estimates of sales can never be accurate, but the degree of risk is reduced if there is an imposed target for the admission of new students into the institution. However, revenue will also depend upon the extent to which students drop-out, and to which fees are waived when they do do drop-out, and upon the number of courses students take at any one time.

Expenditure is often determined by the amount of income available. If income rises, so does expenditure. If income falls, expenditure is put off. Generally, it is investment in the development of new courses or in equipment which will be put off. If the financial situation is really serious, then savings may be imposed on budget holders.

Accurate budgeting requires clear plans about the level of activity which is going to be supported, as well as information about the costs of that activity. Activity costing, described below, will help institutions to identify standard costs which can be applied in drawing up budgets.

Normally an institution is both developing and producing new courses and presenting existing courses to students. It will need to prepare (1) a production budget, which reflects the cost of production, the desired stock or inventory level, and the expected

level of sales and (2) a budget reflecting the volume and cost of services delivered (for example, tuition, counselling, etc.).

The development and production budget may be driven by the number of academic staff in post (or the number of consultants employed), since the output of new materials will depend on the production rates of staff. Alternatively, and desirably, it should be driven by an academic plan which specifies the institution's academic plan, its requirements for new courses, and hence its staffing needs. Either way, once academic staffing needs have been agreed, a faculty budget can be prepared.

The development and production budget should therefore specify staffing levels, staff costs, and activity levels (number of new or remade courses to be developed and produced). These course plans will have to be translated into materials output plans – number of texts, videos, etc., – each of which will need to be costed. It may be possible to use standard costs per text, video, etc. to draw up the budget. The existence of standard course models will also make budgeting easier. In addition to the production of new and replacement plans, existing courses will have materials stock levels, and these will need to be reviewed against student demand to establish what level of restocking is required. To determine production needs, one will need to draw up an inventory budget which shows the desired stock at the end of the year. From this one should subtract the opening stock to provide a balance, and to this balance one should add the likely sales during the year. This provides one with a production target. This target, multiplied by the direct production cost per item, provides the variable element of the production budget. In addition to this, one will need to add indirect production costs, direct production labour costs and production overheads.

Course presentation budgets will also need to be derived. These will need to reflect the overhead costs which arise when a course is presented and the direct presentation costs for each student enrolled on a course, multiplied by the number of students on the course. There are other areas of expenditure where it is not as

easy to apply a volume related approach. Examples might include counselling and advisory services and some areas of administrative expenses. The latter may be regarded as overheads.
The final step is to bring the various budgets together, with overhead costs, to form the basis of the overall budget.

Financial control

Talking about commercial correspondence courses, Williams (1990) has suggested that there are a limited number of key facts which need to be established to plan and control the budget, the most important of which are:

- *Sales*

(A) The average amount of cash taken per enrolment.
(B) The per centage average cash on enrolment of gross salesvalue (i.e [cash received from actual sales per cent total cash receivable if all enrolments pay the full fee] x 100%). This percentage takes account of discounts and instalments unpaid if students withdraw or fail to pay.

- *Advertising*

(C) The conversion rate of enquiries into sales.
(D) The promotional cost per sale.
(E) Enquiry generation (percentage of responses to advertisements in month of advertising, the next month and the month after that).
(F) Conversion ratio (per centage of enquiries who convert to enrolments in month of enquiry, the next month, the one after that, etc.).

- *Percentage promotional cost per sale*

(G) The promotional cost per sale as a per centage of the average amount of cash taken per enrolment [i.e. (D ÷ A) x 100%]. Williams, drawing on his experience of commercial correspondence colleges where advertising is often the most significant item of expenditure, suggests that there is cause for concern where G is greater than 50 per cent. This is probably toohigh already, and a figure of no greater than 20 percent should be aimed at.

- *Course costs*

(H) The average cost per student of the course.
(J) The direct cost per student of tuition and services.

To these measures should be added the total cost of overheads (K) and the contribution (L) which each student makes to overheads, where:

$$L = A - (D + H + J)$$

This will enable management to establish the number of enrolments (S) required to cover the overhead costs of the institution, where:

$$S = K \div L$$

Obviously, the smaller the contribution, the greater the number of students required to cover the overhead costs of the institution. This approach enables one to carry out standard break-even analyses to determine profitability and financial viability.

(i) Activity lasting

Far too many budgets are analysed against inputs (human resources, equipment, accommodation, consumables and expenses) and not against outputs or activities (e.g. amount spent on printed material, amount spent on admitting a student, amount spent on course x, amount spent on the diploma in y programme).

The object of activity costing is to measure the total actual costs incurred on identified activities which reflect the outputs of the institution. A critical element in the implementation of activity costing is the identification of the hierarchy of activities to which costs will be allocated, bearing in mind the need to align this with the major and subordinate objectives of the institution, coupled with the separation out of unallocable overheads.

Activity costing requires four steps: (1) The totality of costs related to a particular activity (however defined) is called the 'cost pool' for that activity. An example might be the activity of correcting assignments. (2) The next step is to identify the 'cost drivers' for each activity – that is, what it is that results in increases or decreases in costs of the activity. For example, the

cost drivers might be the number of assignments which a student on a particular course is expected to do, the number of students registered on the course, and the proportion of students who do any particular assignment. (3) The third step is to review the management information systems to ensure that the data for each cost driver is available. (4) One is then in a position to calculate costs (Deakin University, 1989).

Once the direct costs of each cost pool have been identified, one can decide whether or not overhead costs should be apportioned between the cost pools. The process of doing this is known as absorption costing. One can use various approaches to allocating overheads between cost pools – for example, one can allocate personnel department costs to cost pools pro-rata to the number of staff involved in the cost pool, and finance department costs to cost pools pro-rata to the size of their budget.

The aim of activity costing is to enable management to know where they are in business terms – that is, in relation to particular market sectors, as well as processes (materials development – production – distribution, student services and administration).

Constraints on management

It has to be recognised that government financial regulations may constrain managers to the preparation of budgets in particular formats, to particular timetables, and that freedom to transfer expenditure from one budget head to another, or flex budgets, may be limited.

VI. Outcomes

Planners and managers will wish to know what a particular distance learning system has achieved. Criteria for judging the success or failure of a particular system are likely to vary, depending on the system. This chapter seeks to explore some of the likely criteria which may be applied to the evaluation of distance learning systems, viz:

- providing opportunities for access to education and training,
- completion and drop-out rates (completion, persistence and graduation rates),
- the quality of output,
- cost-efficiency and cost-effectiveness.

Providing opportunities

It is clear that many would-be learners cannot attend full-time or even part-time campus-based courses. Distance education, by its very nature, provides opportunities which would not otherwise be available.

For the individual, these opportunities stem from the flexible, home- and work-place based nature of the teaching system. Of course, for some people, distance education has its drawbacks. The emphasis on independent learning is not to everyone's taste. But for those who cannot attend regular courses, distance education may be the only option available. All the evidence suggests that many thousands of learners have benefited from their participation in a distance taught course.

For employers, distance education has distinct advantages. It is flexible, and staff do not necessarily have to be released from work in order to participate in a course. The cost savings which arise as a result are significant.

For governments, distance education offers the possibility of teaching large numbers of students, rapidly, and relatively cheaply, compared to the costs of traditional forms of education.

Distance learning is an extremely flexible method of teaching. It can be adapted to meet the needs of individual learners working on personal projects, groups of learners within a community setting, and very large populations of learners who, while remote from each other, are following a common course.

The learning needs which can be met through distance education means are also varied, covering formal education courses at primary, secondary, and tertiary level; vocational and professional education; and non-formal education. Knowledge, skills, and attitudes and beliefs can all be taught by distance means.

It is not possible to see how many of the needs now met through distance education could be met, if at all, by any other means.

Completion and drop-out rates

Course completion is usually taken to imply success. Conversely, drop-out is seen as a sign of failure. Hence there is a tendency to see completion and drop-out rates as a measure of the success of distance education systems. In fact, this is only partly true. Many distance students choose to follow a course without necessarily planning to submit all the assignments or take the examination. Course completion in institutional terms is simply not a good way of measuring the personal achievement of individual learners.

In general, completion rates are fairly low. However, many students never start actively studying the course and remain from the institution's point of view non-starters. Shale (1982) found that

half the students enrolled in Athabasca University in 1978 and 1979 fell into this category. Some institutions (e.g. the British Open University) effectively eliminate non-starters from their baseline by only finally registering new students after they have completed two or three months' study. Such practices make direct comparisons between institutions difficult.

Once students embark on a course, success rates vary from system to system. Some 85 per cent of National Technological University students pass the courses they take; 68 to 73 per cent of students on the National Extension College's Technician Training Scheme pass their course examinations; and from 60 to 90 per cent of each cohort taking the Indonesia Banking Development Institute's diploma for loan officers passed the diploma. In the case of the National Extension College, the pass rates on this scheme are slightly higher than those of students who have prepared for the same examinations (BTEC certificates) by traditional means.

Persistence-rates (Paul, 1990) measure the proportion of students who take another course or courses after successfully completing the first one(s). British Open University experience indicates that a significant proportion of undergraduate students (70 to 80 per cent) went on to study a course in the next academic year. However, a number of students dropout for a year, then resume studying.

Graduation rates measure the proportion of students who obtain the final qualification to which a particular programme leads. Graduation rates are usually lower than course completion rates as students fail to take or pass later courses. Eight years after entry, over 54 per cent of the Open University's first (1971) cohort of students had obtained a bachelor's degree. Later cohort, however, did not do so well as fewer students with advanced standing (i.e. previous successful completion of higher education course leading to a reduction in the number of Open University courses required to study) came forward. Only 39 per cent of the 1982 cohort achieved a degree within eight years. Here again, the bald figures hide important qualifications which need to be made in judging the success or failure of the institution.

Studies indicate that drop-out is a multi-causal phenomenon (Woodley and Parlett, 1983). Students with higher previous educational qualifications tend to do better than those with poorer qualifications. Those who find it difficult to reconcile the conflicting demands of their jobs, family and studies tend to do less well, as do those who find it difficult to direct their own learning. On the other hand, it is too easy for educational institutions to accept low completion rates as a function of students' lack of motivation and ability. While motivated, highly intelligent students will learn even under the most adverse circumstances, provided they have access to satisfactory and appropriate learning materials, the majority of students need some degree of support with their studies. Dropout can be reduced by:

- providing excellent study materials;
- providing proper advice to enquiries and applicants before they embark on a course, thus ensuring that individuals do not start courses which are inappropriate to their needs or for which they are still prepared;
- providing rapid, appropriate and effective advice and help to students once they are in the system, making sure that those experiencing study problems are helped to overcome them;
- creating a climate which encourages students to seek advice and help from tutors, counsellors, and each other, and which generates an atmosphere that is supportive and encourages continuing membership of a learning group or 'club' of learnsers, and thus maintains motivation and interest.

It is incumbent on institutions to look at courses with low completion rates, with a view to adapting the materials to help students succeed, or increasing the amount of support provided students. In the final analysis, however, what matters most is that the student is motivated to succeed. Institutions which can motivate students by developing interesting, stimulating materials and improving the quality of the social interaction between students and those they interact with within the institution, are likely to succeed better than those which fail to do these things.

In considering how efficient distance education systems are, it is worth bearing in mind that in general distance taught students take longer to graduate than do students following traditional full-time courses. This is because large number of distance-taught students have jobs. Indeed, one of the attractions of studying at a distance is that it is flexible and enables the demands of the course to be fitted in around other commitments. On the other hand, students often complain that their studies are disrupted by their work. Work-related reasons may be a major cause of drop-out (Phythian and Clements, 1982). In general, students who fail to progress regularly, year-to-year, and who become dormant for a time, are less likely to succeed than those who keep studying steadily.

Quality of output

There is evidence that in the cognitive domain (knowledge competencies) distance education can be as effective if not more so than traditional forms of education. It is also effective in the affective domain – that is, in the teaching of values, attitudes and emotional responses. Skills training in the psycho-motor domain is, however, seen as more problematic (*see the section on media choice in Chapter II*).

There is little doubt that the best of the materials developed and produced by distance education systems is very good indeed. Distance learning systems use a variety of methods (developmental testing, external assessment, external validation) to ensure that their courses are of an equivalent standard to those in traditional institutions. The evidence of their acceptance by academic peers suggests that they can produce first-rate teaching materials.

This is not sufficient in itself, however. The quality of the students' learning is also important. Here too the evidence is encouraging. Many distance learning systems prepare students for examinations which are also taken by students who have attended traditional schools, colleges and universities. The evidence suggests that in the best systems, distance students can do as well

and sometimes better than conventional students. (The example of the National Extension College's Technician Training Scheme was mentioned in the previous section.)

Whether the quality of the products of distance education is recognised is another matter. Escotet (1980) argues that distance education is a form of instruction, not education. Harris (1987) has argued that while the materials produced by distance teaching institutions are often excellent, they are packaged in ways which inhibit discussion and argument, and hence tend to hinder the development of learners who are passive. Distance learning systems do attempt however to encourage dialogue between students and tutors and among students — through face-to-face, correspondence and telephone tuition, and more recently through computer conferencing. And, against this, there is the fact that distance education encourages independent learning.

A survey of employers conducted by the British Open University showed that about half of them felt the University's degree was equivalent to degrees from other British universities. However, while very few thought it was better, a sizeable minority thought it was worse. What is interesting is the reasons that were given. Those who thought the degree was not as good based that view primarily on the grounds that (1) 'the degree was not obtained in an intellectual or academic environment' (35 per cent); (2) 'the older universities are better because they are older and have longer traditions of excellence etc.' (31 per cent): and (3) 'the degree is modular' and 'not the outcome of a period of concentrated study' (25 per cent). Against this, those who thought it was comparable in standards to other universities' degrees cited similarity of academic standards (23 per cent) and syllabi (18 per cent), and the better personal attributes and motivation of the students (10 per cent) (McIntosh and Rigg, 1979). The evidence is that employers do reward students who succeed. Another survey of Open University students showed that two out of three of the University's graduates sought promotion, a pay increase, or a change of job. Overall, 38 per cent felt that they gained one of these outcomes solely because of their Open University qualification, and 16 per cent felt the degree helped their

progression. Independent of any effect on career progression, 71 per cent said their studies helped them improve their job skills and their ability to perform their work (Swift, 1980).

Another measure of success is the extent to which qualifications gained at a distance are regarded as satisfying the entry requirements for higher level studies. Here again, it seems that many British Open University students have positive experiences, though evidence is insufficient.

It seems likely that the graduates of other distance teaching institutions have similar experiences. Unfortunately, the evidence on post-graduation progression is lacking. The evidence from the studies of the National Technological University and the University of Victoria's distance-taught programme in Computer-based Information Systems (Oliveira and Rumble, 1991) is insufficient, if positive.

Cost-efficiency and cost-effectiveness

In spite of the high level of fixed costs, distance learning systems can achieve economies of scale which result in average costs that are lower than those found in traditional educational institutions. These average costs are usually measured in terms of students (usually the cost per full-time equivalent student), student courses, student hours, or graduates. Lower persistence rates usually mean that the average cost per graduate is less favourable, relative to the cost per student, in distance than in traditional systems. This is because proportionally fewer students graduate.

Efficiency is the ratio of inputs (in this case, resources) to outputs. An institution is more cost-efficient than another one if it can produce more outputs than the other institution for the same amount of money, or the same level of output for less money. Most economic studies of distance education are actually studies of cost efficiency, which generally assume that the quality of the output is the same. Effectiveness on the other hand, is concerned with the quality of outputs. An organisation is cost-effective if its outputs are relevant to the needs and demands of clients and cost less than the outputs of other institutions. Assuming similar cost-

efficiency, the more cost effective programme is that which results in the better quality of output.

There are numerous examples of distance education systems that are more cost-efficient than traditional education systems. Perraton (1982) summarises a number of studies which show that the following distance teaching systems are cheaper than comparable systems operating at the same level:

Institution	*Level*
Acción Cultural Popular, Colombia	Primary equivalent, mainly for adults
Radio Santa María, Dominican Republic	Primary equivalent, mainly for adults
Radio ECCA, Canary Islands	Upper primary/lower secondary
Correspondence Course Unit, Kenya	Teacher training
Air Correspondence High School, South Korea	Secondary
Open University, United Kingdom	Tertiary

Other systems have comparable costs, and in some cases, higher average costs than conventional counterparts.

Economies of scale arise because the relatively high fixed costs of distance education can potentially be spread over large numbers of students, while the variable costs per student are generally low enough so as not to put the average cost per student up above that of campus-based students. The economies of scale are achieved fairly quickly as student numbers rise. However, the cost curve begins to flatten out quite quickly, so that most of the significant economies of scale are achieved relatively early on in the expansion of student numbers.

One of the implications of the cost curve is that it pays to design systems from the start with a knowledge of the number of students they are likely to have, and not to design a small pilot project which one then expands to cater for many thousands of

students. For example, it is not sensible to design and evaluate a small pilot project which uses video-cassettes (relatively cheap for very small numbers of students) and then to scale this up for many thousands of students (when the total cost of the video-cassettes becomes prohibitive). Equally, one cannot design and evaluate a pilot scheme based on video-cassettes and assume that this is a substitute for television (which is disproportionately costly for small numbers of students), because the function of the two media is different.

Cost efficiency tends to arise from input substitutions (the substitution of capital for recurrent expenditure). However, distance education systems also give rise to savings on opportunity costs. These include savings on training time, on the physical displacement of people, and on the costs of living elsewhere. Firms in particular can save because some of the costs of training - notably the costs of the employees' time, are transferred from the firm to the individual employee. Thus, while the actual cost per student of providing training at the National Technology University is greater than the cost of provision through a traditional university, the saving to firms comes from the fact that staff can study wherever they are located and do not have to be released from work to attend a full-time course. Given the other advantages of distance education – its flexibility, its ability to reach more people than traditional forms of education in a given amount of time, its ability to meet dispersed populations, etc., the cost advantages of distance education are a powerful argument in its favour.

VII. Conclusions

There seems to be little doubt that distance education is now seen as a key means of meeting a number of educational and training needs. Sometimes distance education is an alternative to traditional means; at others it meets needs which could not be met in any other way.

There is plenty of evidence that distance education can be an effective, cost-efficient way of educating and training people. Planners, governments, and managers generally want to have a quick guide to what makes an institution successful. It is, however, much more difficult to answer questions such as:

- What works best?
- How can we design an effective distance learning system?
- How much will it cost?

Because so much depends on purpose, size, media availability and choice, pedagogic philosophy, the characteristics of the learners, learning styles, the environment within which the institution is to work, etc. As a direct result, the answer to such questions tends to be: 'Well, it all depends. If you do X, then Y ... If you do A and B, then C, D, ... but only provided that E does not apply'.

This booklet, coupled with the various case studies referred to in the list of further reading at the end of the document, provides a wealth of ideas, facts, and opinions on which planners, decision-makers and managers can draw.

The growth of distance education world-wide, coupled with the need to maximise the efficient and effective use of resources,

means that the management of distance education must be regarded as a key component in the successful use of distance education methods. This booklet, while it has ranged widely over the field, has focused on factors which affect the management of distance education.

Most distance education systems comprise three sub-systems: a materials sub-system; a student or learner sub-system; and an administrative sub-system. Particularly in large systems, the first two of these sub-systems may be driven by significantly different cultures and philosophies.

The materials sub-system can be crudely regarded as an industrialised form of education, utilising capital as well as labour to produce goods (the teaching materials) by industrialised processes that see the overall task split into specialist roles (author, broadcast producer, editor, graphic artist, educational technologist, etc.), and in which responsibility for the overall planning and scheduling of much of the work is removed from the individual workers and put in the hands of managers (e.g. course team chairs, project managers, etc.). The industrialised nature of the process, its intensive use of capital, and the fact that the various specialists need to work together closely on the development of the materials, means that there is a tendency for large central departments to develop. These departments are inevitably located together in a central headquarters.

On the other hand, students and tutors are scattered far and wide, and may, indeed, be geographically very isolated indeed. The interactions between students and tutors (and counsellors), students and administrative officers and clerks, and among students, whether by correspondence, telephone, computer mediated communications, or face-to-face, are central to the delivery of the educational service. At this level, the emphasis is on the many hundreds of personal interactions which take place daily, and which are so important to the client or student's perception of the service being offered. Such interaction, while it does not rule out highly efficient, standardised procedures McDonald's), is labour intensive, and hence (in many societies) relatively costly. To maximise its effectiveness, many of these

services need to be located close to the student. Inevitably, therefore, they tend to be regionalized or localised, and hence dispersed.

There is an inevitable tension between the client-oriented, staff-intensive nature of the student support services, and the more industrialised, production-orientated nature of the materials subsystem. (The administrative subsystem may exhibit either trait, depending on whether it is dealing with people or things.)

In traditional education, the teaching staff are responsible for both designing the courses, and for delivering them. In distance education systems – notably those with large numbers of students on each course – there are not enough central academic staff to both develop the courses and teach them. As a direct result, a vital link between the design and oversight of the consumption of the product is weakened. Those who develop the courses may never actually have tutored a student. They may have little appreciation of the service intensive nature of the delivery system.

Unfortunately, those who have this knowledge are physically remote from the centre, where the decisions are taken. Local staff, including tutors, counsellors, and administrative staff, may have a relatively weak voice in central decision making. If this happens, then the needs of the service-oriented 'wing' of the system may be ignored in policy making, and it may be starved of resources. This is potentially serious, since the success of the system depends not only on the excellence of its materials, but on the quality of its student support services.

There is a further point. In at least two of its forms - the individual-centred and the community- or society-centred style of distance education, the industrialised approach to materials development is less appropriate. Not surprisingly, large scale industrialised distance education systems tend to be institution-centred, and to find it difficult to accommodate the individual- or society-centred approaches. Thus it makes sense to design the system, including its political system, in ways which will safeguard the service-orientated side of the institution. This has the added advantage that it puts client needs and characteristics at the centre of planning, and lowers the chances that the system will

concentrate on the development of courses irrespective of the existence of a market, or tolerate high drop-out rates.

Success in distance education requires that the tensions between the two major sub-systems of materials development – production – distribution on the one hand, and student support services on the other, are resolved. There is an urgent need to maintain a proper balance between these two systems. This is perhaps the greatest challenge facing planners and managers in distance education, and it is therefore appropriate that this concluding chapter should end by stressing it.

References and further reading

A. References

Bertrand, Y. 1979. *Les modèles éducationnels*. Montreal, University of Montreal, Services Pédagogique.

Birch, D.; Latcham, J. 1984. *Managing open learning*. Bristol, The Further Education Staff College.

Checkland, P.; Scholes, J. 1990. *Soft systems methodology in action*. Chichester, John Wiley & Sons.

Crick, M. 1980. *Course teams: myth and actuality*. Distance Education, Vol.1, No.2, pp.127-41.

Deakin University. 1989. *Further investigations into activity costing in a mixed mode institution*. N.P., Commonwealth of Australia Department of Employment, Education and Training, University of South Australia.

Deakin University. 1991. *Management of distance education*. Geelong, Deakin University; Underdale, University of South Australia.

Dodd, J.; Rumble, G. 1984. *Planning new distance teaching universities*. Higher Education, Vol.13, pp.231-54.

Dodds, T. 1983. *Administration of distance-teaching institutions.* A manual. Cambridge, United Kingdom, International Extension College.

Eicher, J.-C.; Hawkridge, D.; McAnany, E.G.; Mariet, F.; Orivel, F. 1982. *The economics of new educational media. Volume 3. Cost and effectiveness overview and synthesis.* Paris, UNESCO Press.

Escotet, M.A. 1978. *Factores adversos para el desarrollo de una universidad abierta en América Latina.* Revista de Tecnología Educativa, Vol.4, No.1, pp.66-83. Translated as: "Adverse factors in the development of an Open University in Latin America". In Sewart, D.; Keegan, D.; Holmberg, B. (eds.) 1983. *Distance education.* International perspectives. London, Croom Helm.

Escotet, M.A. 1980. *Tendencias de la educación superior a distancia.* San Jose, Costa Rica, Editorial Universidad Estatal a Distancia.

Friedman, H.Z. 1984. "Computers in academic administration." In Bates, A.W. (ed.) *The role of technology in distance education.* London, Croom Helm.

Gough, J.E. 1978."Course teams – some comments on the Deakin experience". In Northcott, P.; Gough, J.E.; Kerns, L. (eds.) 1980 (2nd. edn.) *Course teams.* Adelaide, South Australian College of External Studies.

Harasim, L. 1989. "On-line education: a new domain". In Mason, R.; Kaye, A. (eds.) Mindweave. *Communication, computers and distance education.* Oxford, Pergamon Press.

Harris, D. 1987. *Openness and closure in distance education.* Lewes, The Falmer Press.

Holmberg, B. 1989. *Theory and practice of distance education.* London, Routledge.

Kaye, A.: Rumble. G. (eds.) 1981. *Distance teaching for higher and adult education.* London, Croom Helm.

Laidlaw, B.; Layard, R. 1974. *Traditional versus Open University teaching methods: a cost comparison.* Instructional Science, Vol.4, pp.237-91.

Lewis, B. 1971. *Course production at the Open University III: Planning and scheduling.* British Journal of Educational Technology, Vol.2, No.3, pp.189-204.

Linder, G.; Lonsdale, H. 1975. *The use of courseware teams for achieving content objectives in televised production.* Denver, Federation of Rocky Mountain States, Inc.

Mason, J. 1976. *Life inside the course team. Teaching at a distance,* Vol.5, pp.27-33.

Mason, R. 1989." An evaluation of COSY on an Open University course". In Mason, R.; Kaye. A. (eds.) Mindweave. *Communication, computers and distance education.* Oxford, Pergamon Press.

MaAnany, E.G.; Oliveira, J.-B.; Orivel, F.; Stone, J. 1982. *Distance education: evaluating new approaches in education for developing countries.* Evaluation in education: an international review series, Vol.6, No.3, pp.289-376.

McIntosh, N..E.; Rigg, M. 1979. *E..ptoyers and the Open University*. Milton Keynes, Open University Survey Research Department.

Miller, E.J. 1959. *Technology, territory and time: the internal differentiation of complex production processes*. Human Relations, Vol.12, pp.243-72.

Mitchell, I. 1978. *The concept of course teams*. Adelaide, College of the Arts and Sciences.

NEC (National Extension College). 1990. *A catalyst for educational change*. Cambridge, United Kingdom, National Extension College.

Newey, C. 1975. *On being a course team chairman. Teaching at a distance*, Vol.4, pp.47-51.

Nicodemus, R. 1984. *Lessons from a course team. Teaching at a distance*, Vol.25, pp.33-9.

Nielsen, H.D. 1990. *Using distance education to extend and improve teaching in developing countries*. Paper presented to the World Conference of Education for All, Jomtien, Thailand, March 1990.

Normann, R. 1974. *Service management: strategy and leadership in service business*. Chichester, John Wiley and Sonsa.

Oliveira, J.-B.; Rumble, G. (eds.) 1991. *Vocational educational at a distance*. International perspectives. London, Kogan Page.

Öster, L. 1965."Problems concerning the office organisation of a large correspondence school". In *European Council for Correspondence education Yearbook, 1965*. Leiden, European Council for Correspondence Education.

Paul, R.H. 1990. *Open learning and open management. Leadership and integrity in distance education.* London, Kogan Page; New York, Nichols Publishing.

Perraton, H. 1982. *The cost of distance education.* Cambridge, United Kingdom, International Extension College.

Perraton, H. 1991. *Administrative structures for distance education.* London. The Commonwealth Secretariat, and Vancouver, The Commonwealth of Learning.

Perry, W. 1976. *A personal account by the first Vice-Chancellor.* Milton Keynes, The Open University Press. Open University.

Phythian, T.; Clements, M. 1983. *Drop-out from third level maths courses. Teaching at a distance,* Vol.21, pp.35-44.

Rekkedal, T. 1983. *The written assignments in correspondence tuition. Effects of reducing turn-around time.* Distance Education, Vol.4, No.2, pp.231-52.

Rogers, C. 1969. *Freedom to learn.* Columbus, Ohio, Charles E. Merrill Publishing Co.

Rumble, G. 1981. "Organisation and decision-making". In see Kaye, A.; Rumble. G. (eds.) *Distance teaching for higher and adult education.* London, Croom Helm.

Rumble, G. 1986. *The planning and management of distance education.* London, Croom Helm.

Schramm, W. 1972. "What the research says". In Schramm, W. (ed.) *Quality in instructional television.* Honolulu, University of Hawaii Press.

Segal, S. 1990. "Strategic planning: the Open Learning Agency experience". In Croft, M.; Mugridge, I.: Daniel, J.S.; Hershfield, A. (eds.) *Distance education: development and access*. Caracas, International Council for Distance Education and Fondo Editorial Universidad Nacional Abierta.

Sewart, D. 1989. "Interaction costs money; independence is free". In Tait, A. (ed.) *Interaction and independence: student support in distance education and open learning*. Cambridge, United Kingdom, Open University East Anglian Region and the International Council for Distance Education.

Shale, D.G. 1982. "Attrition: A case study". In Daniel, J.S.; Stroud, M.A.; Thimpson, J.R. *Learning at a distance: a world perspective*. Edmonton, Athabasca University and the International Council for Correspondence Education.

Shott, M. 1983. *External studies in Australia at the crossroads? (An outsider's view.)* Australian and South Pacific External Studies Association, Vol.9, No.2, pp.2-11.

Sine, B. 1975. *Education and mass media in Black Africa*. Problems presented by the adaptation of educational technologies. Paris, UNESCO. Document ED-75/WS/55.
Singh, B. 1979. "Distance education in developing countries – with special reference to India". In Hakemulder, J.R. (ed.) *Distance education for development*. Bonn, German Foundation for International Development.

Skinner, B.F. 1968. *The technology of teaching*. New York, Appleton-Century-Crofts.

Sparkes, J. 1984. "Pedagogic differences between media". In Bates, A.W. (ed.) *The role of technology in distance education*. London, Croom Helm.

Stacey, R.D. 1990. *Dynamic strategic management for the 1990s. Balancing opportunities and business planning*. London, Kogan Page.

Stone, J. 1975. "Alternative organizational structures for developing multimedia instructional materials". Educational Technology, Vol.15, No.10. Cited in McAnany, E.G. et al. 1982. *Distance education: evaluating new approaches in education for developing countries*. Evaluation in education: an international review, Vol.6, No.3, pp.289-376.

Stone, J.; Oliveira, J.-B. 1980. "A dinâmica do conflicto em organizaçoes de producao de TV educativa. Estudeos e pesquisas", Vol.17/18. Cited in MCANANY, E.G. et al. 1982. *Distance education: evaluating new approaches in education for developing countries*. Evaluation in education: an international review, Vol.6, No.3, pp.289-376.

Swift, B. 1980. *Outcomes of Open University studies - some statistics from a 1980 survey of graduates*. Milton Keynes, Open University Survey Research Department.

Williams, J.D.S. 1990. *Financial administration and control in distance learning*. A paper presented to the Association of European Correspondence Schools Conference, Glascow, 17 May 1990. Lincoln, British Education Training and Technology Association.

Woodley, A.; Parlett, M. 1983. *Student drop-out. Teaching at a distance*, Vol.24, pp.2-23.

B. Further reading

Reading case studies can be a rich and rewarding source of ideas. What follows is a short list of books which contain case studies of particular distance learning systems.

Jamison, D.J.; Klees, S.J.; Wells, S.J. 1978. *The costs of educational media*. Guidelines for planning and evaluation. Beverly Hills, Sage Publications.

Discusses methods for costing instructional technology projects and contains case studies on the Nicaraguan Radio Mathematics Project, Radio Primaria and Telesecundaria projects in Mexico, Instructional Television system in El Salvador, etc.

Koul, B.N.; Jenkins, J. (eds.) 1990. *Distance education: a spectrum of case studies*. London, Kogan Page.

Discusses the Open University, United Kingdom; Allama Iqbal Open University, Pakistan; Sukhothai Thammathirat Open University, Thailand; Open Learning Institute, Canada; Deakin University, Australia; Universiti Sains Malaysia, Malaysia; Zimbabwe Integrated Teacher Education Course; Emergency Science Programme, Guyana; Air Correspondence High School, South Korea; Open School, India; Radio Language Arts Project, Kenya; Institut africain pour le développement économique et Social-Formation, Cameroon; Acción Cultural Popular, Colombia; Functional Education Project in Rural Areas, Pakistan; Offshore engineers project, United Kingdom; Women's Studies, Australia; Refugees programme, Zambia; Health Workers project, Kenya; and minorities project, USA.

Mugridge, I.; Kaufman, D. (eds.) 1986. *Distance education in Canada*.

As well as discussing functional aspects of distance education, use of technology, and distance education programmes by programme, contains case studies on The Open Learning Institute, Athabasca University, Télé-université du Quebec, and North Island College.

Oliveira, J.; Rumble, G. (eds.) 1992. *La educación a Distancia en América Latina*. Washington, D.C., Economic Development Institute of the World Bank.
Contains case studies on CENAPEC, Dominican Republic; Telesecundaria, Mexico; Universidad Estatal a Distancia, Costa Rica; and Projecto Acesso, Brazil.

Perraton, H. (ed.) 1982. *Alternative routes to formal education: distance teaching for school equivalency*. Baltimore, John Hopkins University Press.
Contains case studies of the Minerva and Madurez projects in Brazil, Malawi Correspondence College, Mauritius College of the Air, Korean Air Correspondence High School, in-service teacher training in Kenya, and Everyman's University (Israel).

Perraton, H. 1984. Training teachers at a distance. London, Commonwealth Secretariat.
Discusses teacher training by distance means, drawing on experiences world-wide.

Rumble, G.; Harry, K (eds.) 1982. *The distance teaching universities*. London, Croom Helm.
Contains case studies of Athabasca University, Canada; the Central Broadcasting and Television University, China; The Universidad Estatal a Distancia, Costa Rica; the Fernuniversität, Germany; Everyman's University, Israel; the Allama Iqbal Open University, Pakistan; the Universidad Nacional de Educación a Distancia, Spain; the Open University, United Kingdom; and the Universidad Nacional Abierta, Venezuela.

Rumble, G.; Oliveira, J. (eds.). In press. *Vocational education at a distance*. International perspectives. London, Kogan Page.
Contains case studies on the Working on Work project, the Netherlands; Servicio Nacional de Aprendizaje, Colombia; Open College, United Kingdom; Instituto Nacional de Capacitización, Chile; University of Victoria computer education programme, Canada; National Extension College's Technician Training Scheme, United Kingdom; Banking

education in Indonesia; Wye College external programme, United Kingdom; National Technological University, USA; interactive multimedia training in the SANPAOLO Banking Group; the Telecom/Telematique International course on project management; and the Technical Open Polytechnic, New Zealand.

UNESCO, 1977. *The economics of new education media.* Paris. The UNESCO Press.

Contains a bibliography and abstracts of a wide range of studies, as well as case studies of Mexico's Radioprimeria, Instructional Radio in Nepal, the El Salvador ITV system, Mexico's Telesecundia, etc. Some overlap with Jamison et al above.

UNESCO, 1980. *The economics of new educational media,* Volume 2. Cost and effectiveness. Paris. The UNESCO Press.

Contains studies of the Ivory Coast primary education by television project, Acción Cultural Popular in Colombia, educational television in Maranhâo and Ceara, Brazil, etc.

IIEP publications and documents

More than 650 titles on all aspects of educational planning have been published by the International Institute for Educational Planning. A comprehensive catalogue, giving details of their availability, includes research reports, case studies, seminar documents, training materials, occasional papers and reference books in the following subject categories:

Economics of education, costs and financing.

Manpower and employment.

Demographic studies.

The location of schools (school map) and sub-national planning.

Administration and management.

Curriculum development and evaluation.

Educational technology.

Primary, secondary and higher education.

Vocational and technical education.

Non-formal, out-of-school, adult and rural education.

Copies of the catalogue may be obtained from the IIEP Publications Unit on request.

The International Institute for Educational Planning

The International Institute for Educational Planning (IIEP) is an international centre for advanced training and research in the field of educational planning. It was established by UNESCO in 1963 and is financed by UNESCO and by voluntary contributions from Member States. In recent years the following Member States have provided voluntary contributions to the Institute: Belgium, Canada, Denmark, Finland, Iceland, India, Ireland, Norway, Sweden, Switzerland and Venezuela.

The Institute's aim is to contribute to the development of education throughout the world, by expanding both knowledge and the supply of competent professionals in the field of educational planning. In this endeavour the Institute co-operates with interested training and research organizations in Member States. The Governing Board of the IIEP, which approves the Institute's programme and budget, consists of eight elected members and four members designated by the United Nations Organization and certain of its specialized agencies and institutes.

Chairman:
Victor L. Urquidi, (Mexico) Research Professor Emeritus, El Colegio de México, Mexico.

Designated Members:
Arturo Nunez del Prado, Director, Latin American and the Caribbean Institute for Economic and Social Planning, Santiago.
Cristian Ossa, Director, Development Policy and Analysis Division, Department of Economic and Social Development, United Nations.
Visvanathan Rajagopalan, Vice-President, Sector Policy and Research, Policy, Research and External Affairs, The World Bank.
Allan F. Salt, Director, Training Department, International Labour Office.

Elected Members:
Isao Amagi (Japan), Special Advisor to the Minister of Education, Science and Culture, Ministry of Education, Science and Culture, Tokyo. *Henri Bartoli* (France), Professor, Séminaire d'Economie du Travail, Centre Pierre Mendès-France, Paris.
Mohamed Dowidar (Egypt), Professor and President of the Department of Economics, Law Faculty, University of Alexandria.
Kabiru Kinyanjui (Kenya), Senior Programme Officer, Social Sciences Division, International Development Research Centre, Nairobi.
Yolanda M. Rojas (Costa Rica), Academic Vice-Rector, Faculty of Education, University of Costa Rica, San José, Costa Rica.
Lennart Wohlgemuth, (Sweden), Assistant Director-General, Swedish International Development Authority, Stockholm.

Inquiries about the Institute should be addressed to:
The Office of the Director, International Institute for Educational Planning, 7-9 rue Eugène-Delacroix, 75116 Paris, France.

109 A

The booklet

This booklet examines the management of distance learning systems from the perspective of planning, organising, leading and controlling. Starting with the question, "Why distance education?", it looks at the various factors which planners need to take into account in setting up and running a distance learning system, before turning to questions of organizing and controlling a system. Finally, it looks at some of the criteria which will be used to judge the success or otherwise of a distance learning system.

The author

Greville Rumble is Regional Director, East Anglian Region, at the Open University, United Kingdom. He is author or co-author of numerous publications on distance education.

ISBN: 92-803-1145-X